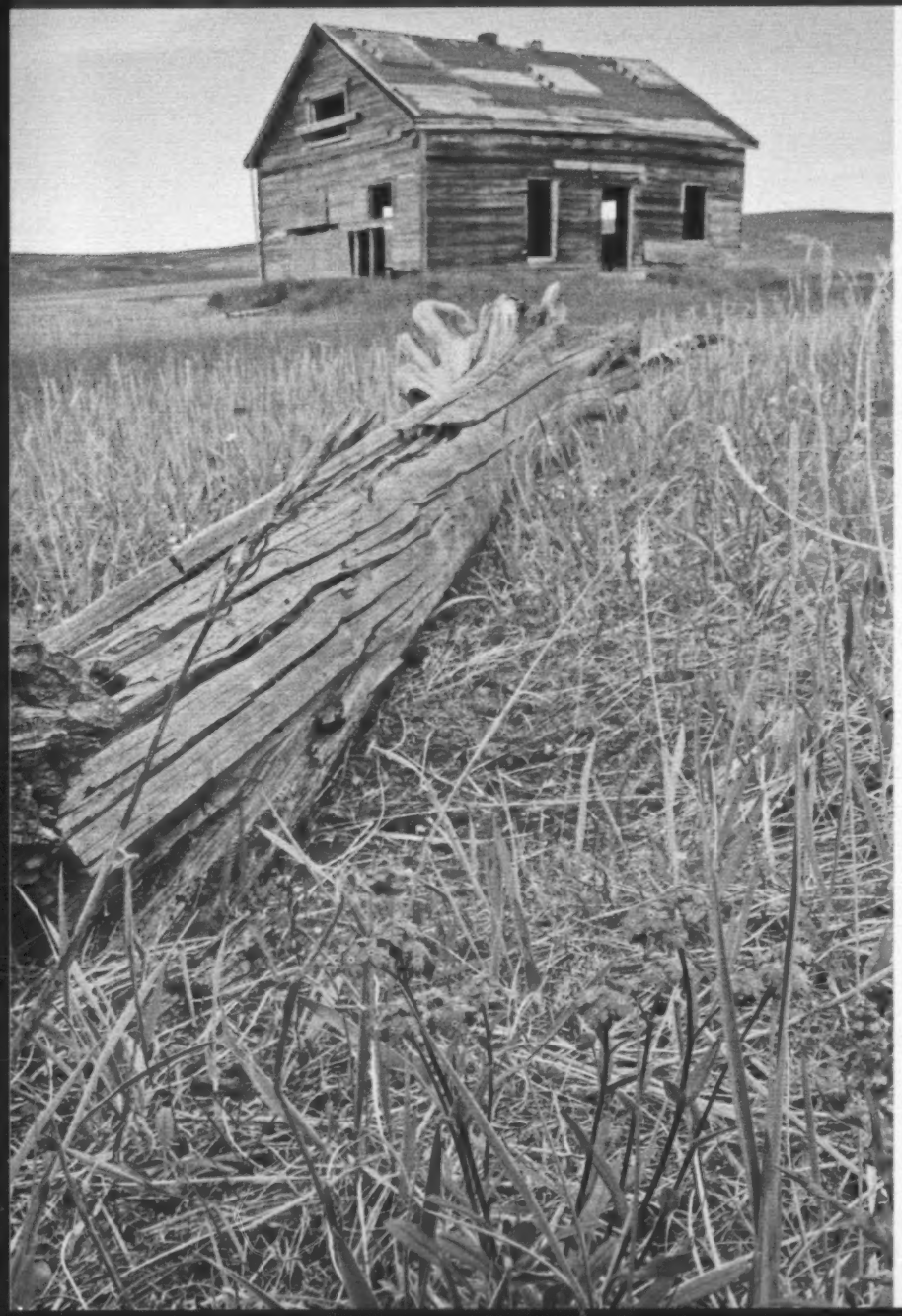
State of the Environment Interim Report - 2015

An Update on Environmental Indicators

Yukon
Environment

Acknowledgments



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ISBN: 978-1-55362-653-4

Cover Photo: Yukon River © Richard Legner
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Highlights

Whitehorse.

Climate Change

- In 2014, average temperatures in Yukon were approximately 1.8°C higher than the baseline average for 1961-1990. 2014 was Yukon's seventh warmest year on record.

Air

- Average daily levels of fine particulate matter exceeded the Yukon Ambient Air Quality Standard two days out of the year (compared with 19 in 2012).
- Average monthly levels of fine particulate matter were higher than the 10-year average every month except August.

Water

- Rolling average Water Quality Index ratings for water monitoring sites in Yukon remained mostly stable between 2009-11 and 2010-12, and in the range of Fair to Excellent. Water quality at one site, Rose Creek station, improved from Fair to Good during this period.
- Climate change is affecting hydrology patterns in Yukon. For example, ice break-up on the Yukon River at Dawson City now occurs six days earlier than in 1896, and snow depth at the Log Cabin snow survey station in the Upper Yukon River has increased.

Land

- The Official Community Plan for the Town of Faro was updated in 2014.
- While no new regional land use plans, forest resources management plans, local area plans, or protected area plans have been completed since spring 2014, work to implement existing plans is ongoing.
- Use of Yukon government campgrounds increased between 2012 and 2014.
- The percentage of Whitehorse waste diverted from the landfill through recycling and composting increased from 19 to 22 per cent between 2012 and 2013.

Fish and Wildlife

- The escapement range for Canadian-origin Chinook salmon was achieved in 2014.
- Lake trout harvest in most Yukon lakes continues to be sustainable.
- The size of the Porcupine caribou herd increased between 2010 and 2013, from an estimated 169,000 to 197,000 animals.
- One community-based fish and wildlife work plan was completed in 2014.
- In 2014, the Committee on the Status of Endangered Wildlife in Canada assessed one Yukon species as Endangered and three as of Special Concern, bringing the total number of Yukon species at risk to 33.

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Siberian Phlox.

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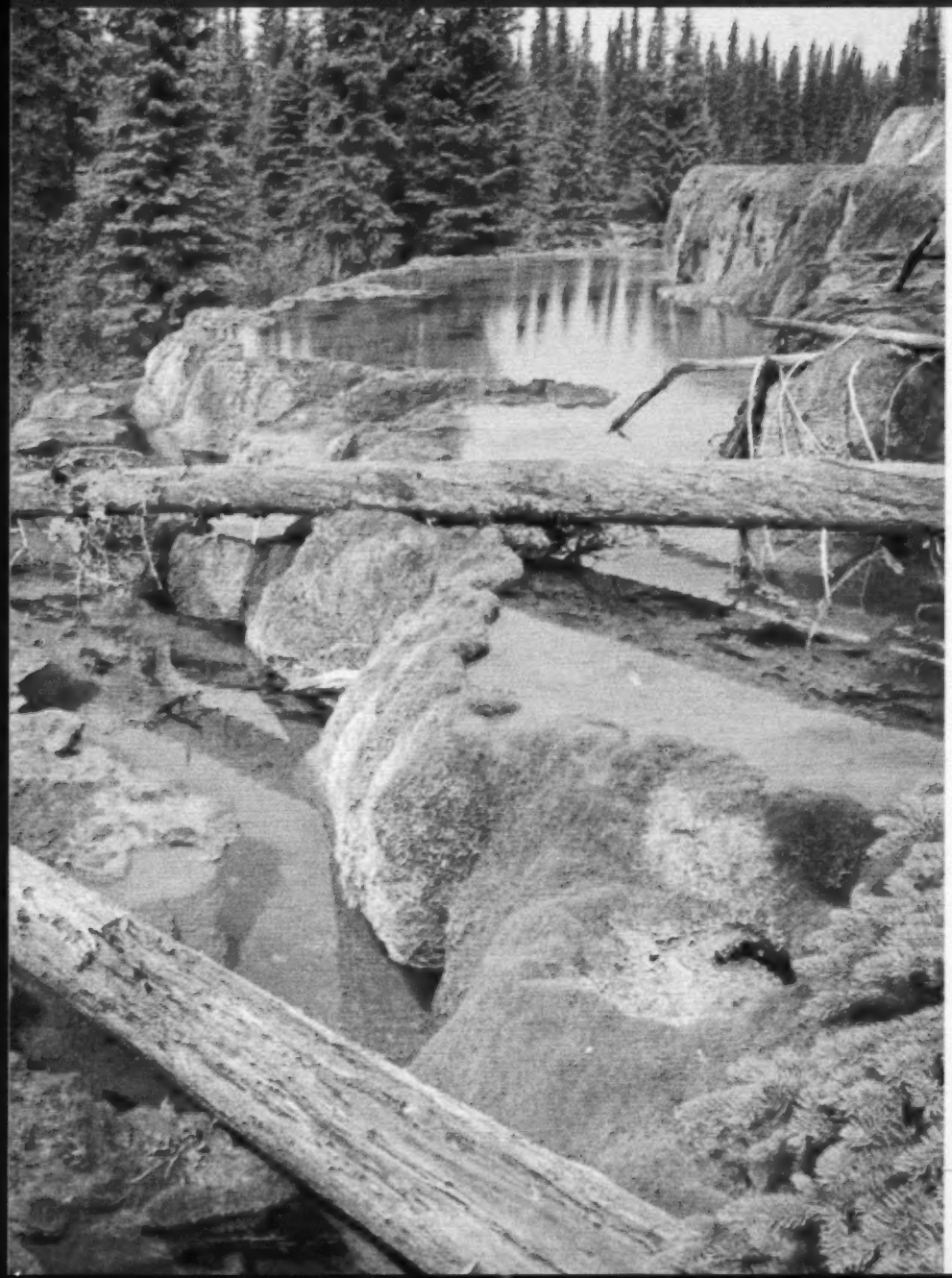

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Introduction

State of the environment reports are required by the *Environment Act* in order to provide early warning of potential environmental problems; enable members of the public to monitor progress on achieving the act's objectives; and provide baseline information for environmental planning, assessment and regulation. They provide the most current available information on the condition of Yukon's environment, helping to support decision-making by governments and individuals.

Under the act, the Minister of Environment is required to table a *State of the Environment Report* every three years. In the intervening years, interim reports are tabled that comment on matters contained in the previous *State of the Environment Report*.

The most recent *Yukon State of the Environment Report* was published in May 2014. This interim report updates 27 of the 33 environmental indicators that were presented in 2014. It also provides information on recent and current government actions to address environmental issues, and includes eleven profile stories that highlight interesting and evolving work in Yukon.

Lowell Glacier in the St.Elias Mountains.

Climate Change

Alsek Lake and Lowell Glacier, Kluane National Park.

The Yukon government recognizes that climate change is happening, that human behaviour is a major contributor, and that a coordinated response is needed. Yukon is experiencing climate change effects that include thawing permafrost; changes in water quality and quantity; changes in temperature and precipitation trends; and changes in the diversity, health, and distribution of animal species. Recognizing that we cannot address climate change alone, the Yukon government is committed to working with all our partners to effectively respond to our changing climate through measures to reduce greenhouse gas emissions and develop resiliency in response to the changes we're already experiencing. For more information, as well as indicator data reported in 2014, please see the *2014 State of the Environment Report*, Climate Change chapter.

Indicator updates

Greenhouse gas (GHG) emission levels

1(a) Trends in Yukon GHG levels (updated using 2012 data)

In Canada's National Inventory Report 1990-2012: Greenhouse Gas Sources and Sinks in Canada, Environment Canada reported Yukon's 2012 GHG emissions as 370 kilotonnes of carbon dioxide equivalent (CO_2e), or 0.05 per cent of Canada's total GHG emissions. This represents a 3.4 per cent decrease compared with Yukon's GHG emissions in 2011 (383 kilotonnes CO_2e) (Environment Canada 2014b).[1]

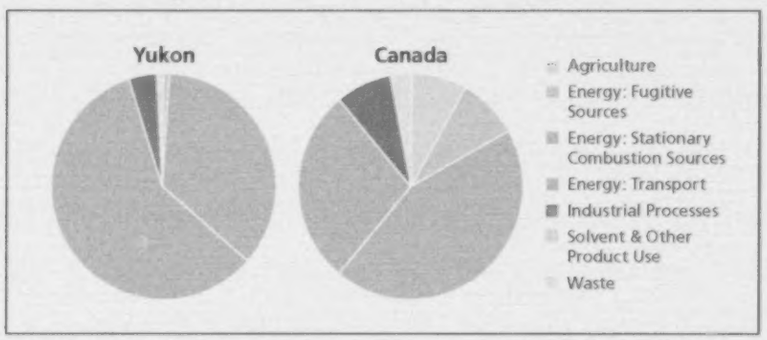
[1] While Yukon's 2011 GHG emissions were reported in the *2014 State of the Environment Report* as 374 kilotonnes CO_2e, they were recalculated and reported in Canada's National Inventory Report 1990-2012: Greenhouse Gas Sources and Sinks in Canada as 383 kilotonnes CO_2e. Past GHG emission estimates are routinely recalculated as new information and data become available and more accurate methods are developed, in order to provide a consistent and comparable trend in emissions and removals (Environment Canada 2014b).

1(b) Yukon vs. Canada GHG emissions by sector (updated using 2012 data)

As reported by Environment Canada, in 2012 the transportation sector accounted for the largest share of Yukon's GHG emissions – almost 60 per cent. The second largest share was contributed by stationary combustion sources which include, for example, institutional, commercial, and residential sources; electricity and heat generation; and fossil fuel production and refining (Environment Canada 2014b) (see Figure 1.1).

A 2013 analysis of GHG emissions from Yukon's transportation sector suggested that Yukon-wide data from Canada's National Inventory Report, while accurate at the national level, underreports Yukon's emissions (Taggert and Pearson 2013). The Yukon government continues to work with federal partners to achieve an accurate and consistent emissions profile for the territory.

Figure 1.1: Greenhouse gas emissions by sector (Yukon vs. Canada), 2012



Source: Environment Canada

Environmental changes [2]

1(c) Long-term trend in temperature and precipitation variation (updated using 2014 data)

In 2014, average temperatures in Yukon were approximately 1.8°C higher than the baseline average for 1961-1990, and 2014 was Yukon's seventh warmest year on record (Environment Canada 2014a). Average winter temperatures in Yukon have increased 5.0°C

[2] For other indicators of changes to the environment resulting from climate change, see this report's section on Water Quantity (page 16).

PROFILE

Arctic Adaptation Exchange Information Portal

The Arctic Adaptation Exchange information portal was a priority project of Canada's Arctic Council Chairmanship (2013-15). The Yukon government co-led the project in partnership with other governments, academic institutions and indigenous organizations.

The portal is an online resource specific to the circumpolar north that improves access to information resources on climate change adaptation and supports the exchange of scientific, traditional and local knowledge and the sharing of best practices. Through the portal, users can access Arctic Council materials on climate change adaptation; a resource base of adaptation-related traditional and local knowledge materials; and links to trusted, high-content websites where users can explore and research climate change issues.

The portal is available to the public at **www.arcticadaptationexchange.com** with accessible features that will allow users to:

- Find resources by browsing a Google map of the circumpolar north;
- Search the e-library for linked documents and websites and receive results that can be displayed as geographical points or as text search results; and
- Receive email notifications when new resources relevant to their previous searches have been added to the portal.

Development of the portal was led by two Arctic Council member states (Canada, represented by Environment Yukon and Natural Resources Canada, and the United States, represented by the University of Alaska-Fairbanks and the U.S. State Department) and two Arctic indigenous organizations contributing as Arctic Council Permanent Participants (Gwich'in Council International and Aleut International Association).

Climate Change

over the past 50 years, while average temperatures in Canada have increased 3.0°C over the past 67 years. This is consistent with the warming trend reported in the *2014 State of the Environment Report*, a trend which is expected to continue. Global studies, including the *2014 Intergovernmental Panel on Climate Change Fifth Assessment Report*, continue to show that the Arctic is warming more quickly than other regions.

Although both Yukon and Canada as a whole experienced less precipitation in 2014 than the 1961-1990 baseline average (Environment Canada 2014a), precipitation in Yukon has increased about 5 per cent over the past 50 years. It is important to note that precipitation is relatively variable compared with other climate change indicators.

Flooding on the South Alaska Highway, Rancheria area, 2012.

Taking action

The Yukon government has taken an active role in Canada's 2013-15 chairmanship of the Arctic Council, an intergovernmental forum including Arctic governments and indigenous peoples. The Yukon government co-led the development of an online information portal on climate change adaptation (see profile, page 7) and participated in the Arctic Council's Task Force on Black Carbon and Methane.

In December 2014, the Yukon government participated in the 20th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 20) in Peru. In recognition of the importance of youth involvement in climate change issues, Yukon's COP 20 delegation included Youth Ambassador Aletta Leitch. See Aletta's blog at **www.ytyouthambassador.tumblr.com** to learn more about her experiences at COP 20.

The Yukon government provides funding to the Yukon Research Centre (YRC) at Yukon College to support collaborative research, innovation and outreach projects. The YRC is involved in a variety of initiatives including, for example, projects related to climate change, cold climate innovation, and energy.

In 2014-15, the Emergency Measures Organization initiated the Yukon Flood Risk Mapping project to help predict flooding risks for communities (see map, page 18).

The Yukon government reports annually on GHG emissions from its operations to inform on where efficiencies can be made. In 2012 (the latest data year available), the Yukon government emitted 40.7 kilotonnes of verified GHG emissions, down 2.3 per cent from its 2010 base year.

Launched in January 2015, the government's new Good Energy Residential Incentives Program will help Yukoners increase the energy efficiency of their homes and decrease their GHG emissions. This three-year pilot program offers incentives for those who are renovating existing homes; building new super-insulated homes; and/or installing smaller-scale, residential renewable energy systems to generate electricity.

Since 2007, the Good Energy Rebate program has provided over 10,000 rebates, displaced an estimated 29,000 tonnes of GHG emissions, and resulted in total estimated energy savings of 17 million kilowatt hours (kWh) and total estimated cost savings of $15.3 million.

Other current Yukon government programs that support increased energy efficiency and use of renewable energy resources include the Good Energy Appliance Rebate, Micro-Generation Production Incentive Program (see profile, below), Refrigerator Retirement Program, Startpoint Energy Audit, and Wind Prospecting Service. The Energy Solutions Centre's storefront service also provides advice on energy-related topics.

From 2009 (when the *Energy Strategy for Yukon* was released) to 2014, Yukon's renewable energy generation increased by approximately 15 per cent in total, to 1,950 terajoules per year. This is the result of new hydro-electric generation such as the Mayo B Hydro Project, as well as progress in the heating sector for residences and Yukon government buildings.

PROFILE

Yukon Micro-Generation Production Incentive Program

In 2014, the Yukon government announced the Micro-Generation Production Incentive Program, which supports the Yukon Micro-Generation Policy. For the purpose of the program, "micro-generation" means the small-scale generation of electric power by individuals, small businesses, and communities to meet their own needs, as an alternative or supplement to traditional centralized grid-connected power.

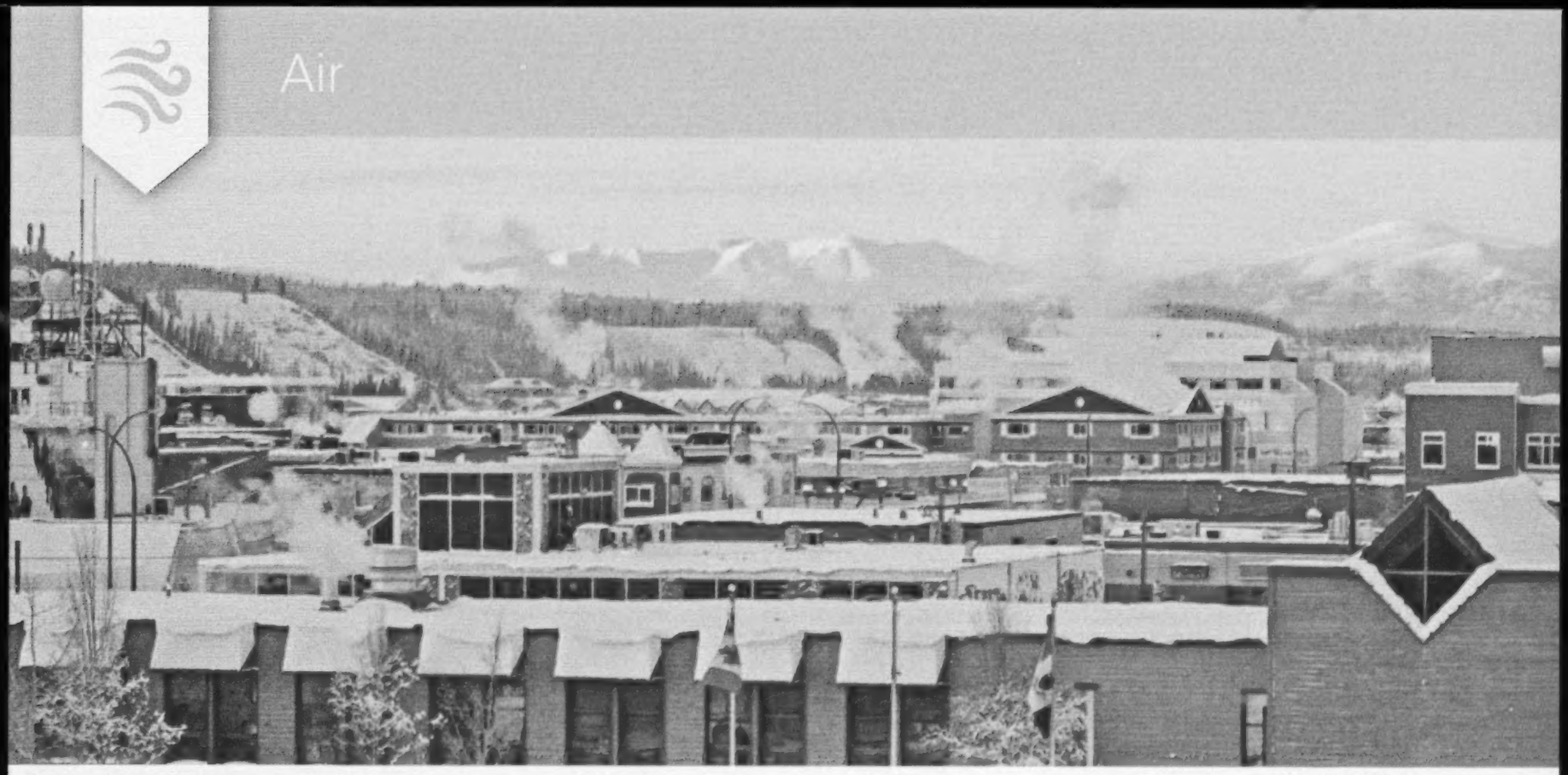
The program enables participants to export their surplus power to the grid and receive compensation. It is intended to promote and develop renewable energy sources in Yukon and to encourage energy conservation and efficiency, helping to reduce GHG emissions.

Only renewable technologies are eligible: wind power, micro-hydro, biomass, and solar electric systems. Other renewable technologies will be considered as they emerge.

In 2014, eight solar electric systems were installed and are expected to generate 22,000 kWh per year.

For more information on the Yukon Micro-Generation Production Incentive Program and how to apply, see **www.energy.gov.yk.ca/microgeneration.html**, visit the Energy Branch (Energy Solutions Centre) at 206A Lowe Street in Whitehorse, or contact the Energy Branch by email at energy@gov.yk.ca or by phone at 393-7063 or toll-free at 1-800-661-0408.

Air



Downtown Whitehorse.

Poor air quality can harm human and environmental health. The concentration of fine particulate matter ($PM_{2.5}$) in the air is an effective air quality indicator as $PM_{2.5}$ can pose serious health risks when inhaled, especially among the elderly, children, and people with chronic respiratory illnesses. For more information, as well as indicator data reported in 2014, please see the *2014 State of the Environment Report*, Air chapter.

Indicator updates

Level of airborne particulate matter

2(a) Mean ambient annual $PM_{2.5}$ level in the City of Whitehorse (updated using 2013 data)

The average annual ambient concentration of $PM_{2.5}$ in Whitehorse in 2013 was 6.1 µg/m^3, slightly higher than the average for 2012 (5.0 µg/m^3) but significantly below the current Yukon Ambient Air Quality Standard[3] for average annual $PM_{2.5}$ levels (10.0 µg/m^3) (Environment Canada 2014c).

[3]The Yukon Ambient Air Quality Standards are the maximum concentrations of pollutants acceptable in ambient air throughout Yukon. The standard for daily average $PM_{2.5}$ was updated in September 2014, from 30 µg/m^3 to 28 µg/m^3.

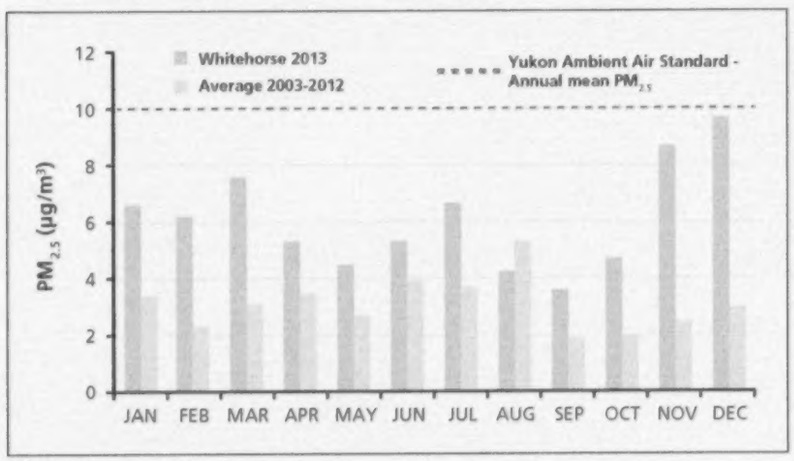
2(b) Number of days per year that $PM_{2.5}$ levels in Whitehorse exceed the Yukon Ambient Air Quality Standard (updated using 2013 data)

Ambient $PM_{2.5}$ levels in Whitehorse exceeded the Yukon Ambient Air Quality Standard for average $PM_{2.5}$ concentrations in a 24-hour period on two days in 2013, compared with 19 days in 2012.

2(c) Average monthly $PM_{2.5}$ levels for 2013 compared with 2003-2012 (updated using 2013 data)

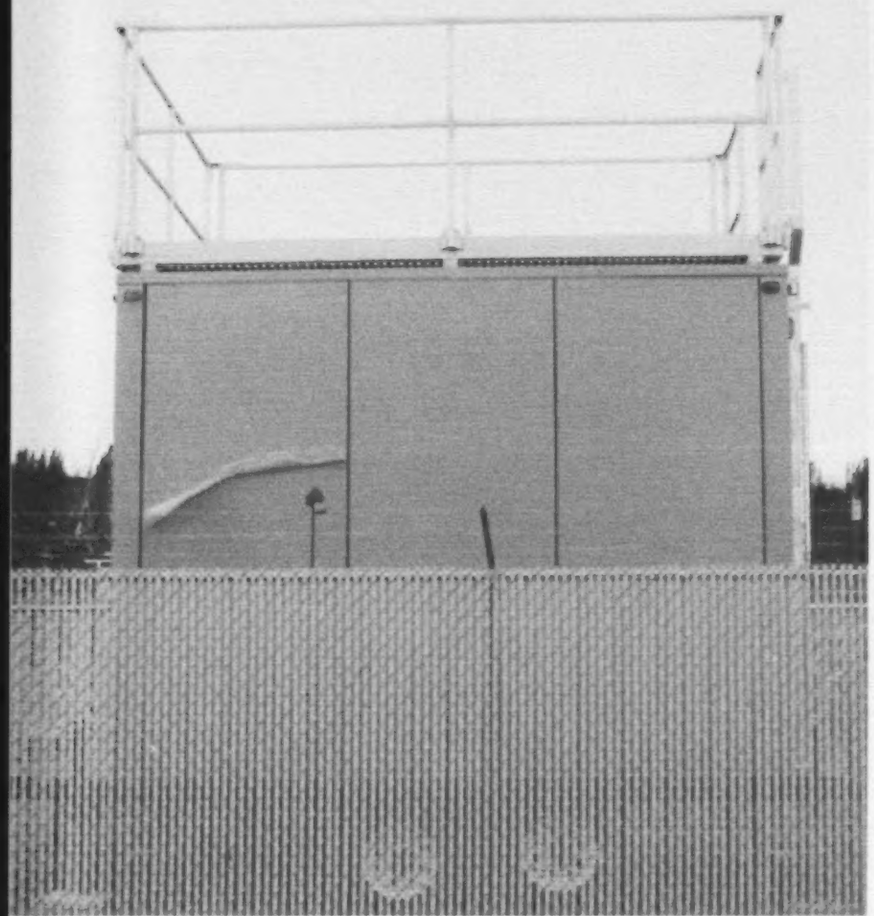
In 2013, the average monthly $PM_{2.5}$ levels in Whitehorse were mostly higher than the cumulative monthly averages for the previous 10-year period (Figure 2.1). The higher 2013 levels are likely a result of a number of factors, including, but not limited to, the relocation of the monitoring station from a relatively windy site on the Yukon River to downtown Whitehorse in 2011, along with the replacement of the $PM_{2.5}$ monitoring instrument to a technically advanced higher-precision analyzer.

Figure 2.1: Monthly average fine particulate matter levels in Whitehorse – 2013 compared to the average of the preceding 10 years (2003-2012) [µg/m³]



Source: Environment Yukon

Downtown Whitehorse.



Air monitoring station, downtown Whitehorse.

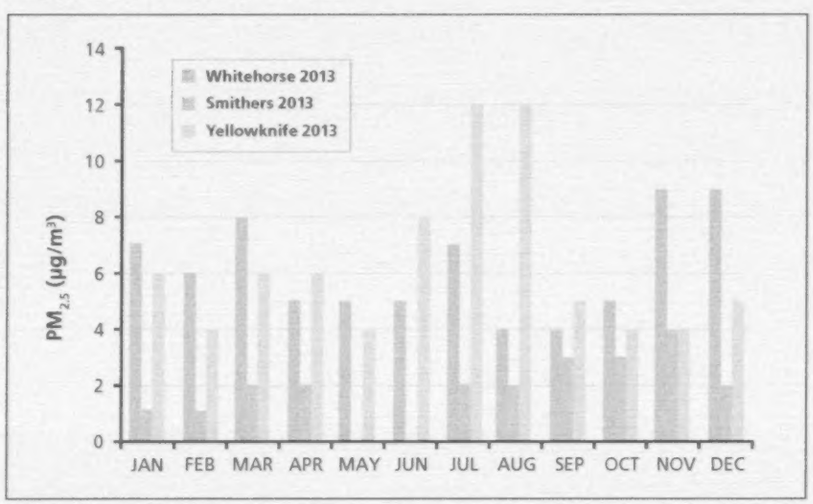
2(d) City of Whitehorse average monthly $PM_{2.5}$ levels compared with similar communities (updated using 2013 data)

Average monthly $PM_{2.5}$ levels in Whitehorse in 2013 were higher than those in Smithers, British Columbia in every month for which data are available (Figure 2.2). 2013 data show a greater difference between the two communities' $PM_{2.5}$ levels than in previous years; this change is due largely to decreased $PM_{2.5}$ levels observed in Smithers.

Average $PM_{2.5}$ levels in Whitehorse in 2013 were comparable to levels in Yellowknife, Northwest Territories for most months of the year. Higher concentrations were observed in Whitehorse in November and December.

Generally, the most common factors leading to higher particulate matter readings at the Whitehorse station in 2013 are due to cold winter months when meteorological conditions trap wood smoke in the lower atmospheric level (inversions). The $PM_{2.5}$ annual mean recorded in Whitehorse for 2013 was 9 $\mu g/m^3$, falling just under the Yukon Ambient Air Quality Standard annual mean of 10 $\mu g/m^3$.

Figure 2.2: Monthly average fine particulate matter levels in Whitehorse compared with Smithers BC and Yellowknife NT, 2013



Source: Environment Yukon

* Note: Data for Smithers are not available for May and June due to technical issues.

Taking action

In September 2014, the Yukon government updated the Yukon Ambient Air Quality Standards to be more stringent and to align with the Canadian Ambient Air Quality Standards (CAAQS). The CAAQS are national standards established under the Air Quality Management System.

Dawson City.

Water

Kaskawulsh Glacier, Kluane National Park.

Water is essential for both the environment and the economy. It provides habitat for fish, plants and animals and supports basic life processes. It also supports human activities such as industry, recreation, agriculture, and drinking. For more information, as well as indicator data reported in 2014, please see the *2014 State of the Environment Report*, Water chapter.

Indicator updates

Water Quality

3(a) Samples collected at Yukon water quality monitoring stations (updating using 2012 data)

In 2012, a total of 67 water samples were collected from eight Yukon water quality monitoring stations operated by Environment Canada and Environment Yukon (see Table 3.1).

The decrease in sampling frequency at certain monitoring stations between 2009 and 2012 reflects the fact that sampling frequency is normally reduced at a given site once a robust water quality baseline has been established.

Table 3.1: Number of samples collected at Yukon water quality monitoring stations, 2009-2012

River	Station	Ecoregion	2009	2010	2011	2012
Alsek River	Above Bates River	Yukon-Stikine Highlands	6	6	5	7
Dezadeash River	At Haines Junction	Ruby Range	23	24	22	11
Klondike River	Above Bonanza	Klondike Plateau	8	8	8	8
Liard River	At Upper Crossing	Liard Basin	17	19	15	7
Rose Creek	Above Anvil Creek	Yukon Plateau – Central	23	25	15	12
S. McQuesten River	Below Flat Creek	Yukon Plateau – North	11	9	9	6
Yukon River	Above Takhini River	Yukon Southern Lakes	10	10	10	8
Yukon River	At Marsh Lake Dam	Yukon Southern Lakes	10	10	11	8
Total samples			**108**	**111**	**95**	**67**

Source: Environment Yukon

3(b) Water Quality Index rolling average ratings (updated using 2012 data)

The Water Quality Index (WQI), developed by the Canadian Council of Ministers of the Environment, summarizes complex water quality data using a number scale from 0 to 100. WQI scores are categorized as Poor (0-44), Marginal (45-64), Fair (65-79), Good (80-94), and Excellent (95-100). The WQI measures the frequency and amplitude to which selected parameters exceed water quality objectives. A site will have a lower WQI rating when water quality objectives for the site are not met (Canadian Council of Ministers of the Environment 2001).[4] The Yukon government currently tracks three-year rolling average WQI scores for seven monitoring stations (see Table 3.2). Three-year rolling averages provide additional confidence in the ratings.

[4]Water quality objectives are based on site-specific guidelines or federally established guidelines that meet environmental protection goals (for example, CCME's Canadian Water Quality Guidelines for the Protection of Aquatic Life).

Average WQI ratings for the Dezadeash, Liard, Klondike, South McQuesten, and Yukon River monitoring stations remained stable during the period 2010-12. Average ratings remained in the Fair to Excellent range in 2010-12.

The average WQI rating for the Rose Creek monitoring station, downstream of the historic Faro Mine complex, improved from Fair in 2009-11 to Good in 2010-12. This is due primarily to instances in 2009 in which metal concentrations exceeded water quality objectives. These exceedences are not captured in the most recent rolling average.

Table 3.2: Water Quality Index rolling average ratings for Yukon water quality monitoring stations, 2003-2012

Location	2003-2005	2004-2006	2005-2007	2006-2008	2007-2009	2008-2010	2009-2011	2010-2012	Current Rating
Dezadeash River at Haines Junction	84.2	84.2	89.5	N/A	89.5	N/A	89.5	87.1	Good
Klondike River above Bonanza Creek	N/A	N/A	66.8	66.6	67.4	74.2	74.2	74.2	Fair
Liard River at Upper Crossing	93.6	93.6	93.6	87.2	93.6	87.2	87.1	80.6	Good
South McQuesten River below Flat Creek	N/A	N/A	64.4	64.3	64.0	70	69.5	70.1	Fair
Rose Creek above Anvil Creek							65.3	80.7	Good
Yukon River at Marsh Lake Dam	N/A	N/A	100	N/A	100	N/A	100	100	Excellent
Yukon River above Takhini River	N/A	N/A	100	100	100	93.6	93.6	93.6	Good

*Note: Rolling averages are not tracked for the Alsek River as it is sampled too infrequently.

Source: Environment Yukon and Environment Canada

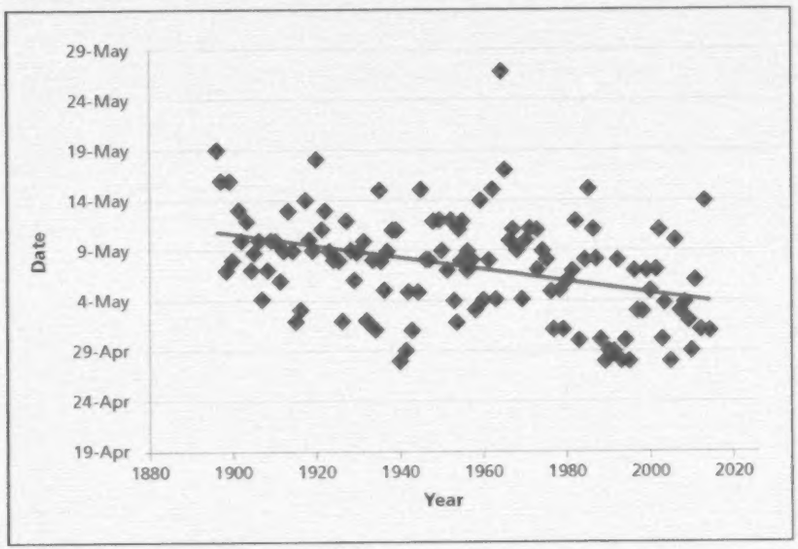
Water

Water Quantity

3(c) Yukon River ice break-up dates (updated using 2014 data)

As reported in 2014, ice break-up on the Yukon River at Dawson City now occurs six days earlier on average than in 1896, when data collection began (see Figure 3.1).

Figure 3.1: Ice break-up dates on the Yukon River at Dawson City, 1896-2014



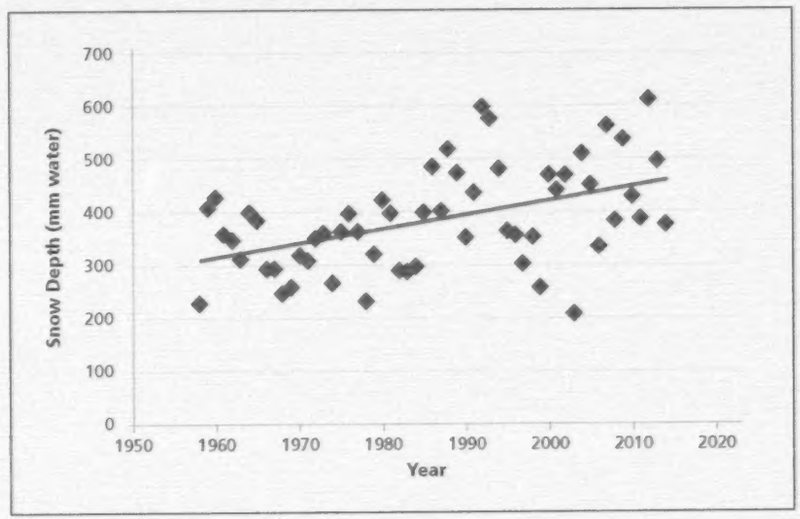
Source: Environment Yukon

3(d) Magnitude and timing of peak flow (no update)

3(e) Changes in snow cover (updated using 2014 data)

As reported in 2014, winter precipitation in Yukon has increased substantially since 1958. This is reflected by increased snow depth at the Log Cabin snow survey station in the Upper Yukon River (see Figure 3.2).

Figure 3.2: Changes in snow depth at Log Cabin, 1958-2014



Source: Environment Yukon

PROFILE
Yukon Flood Risk Mapping

Yukon communities are expected to face more frequent flooding in the future due to the effects of climate change. In response to this increased risk, the Emergency Measures Organization (EMO) is taking action to identify areas at risk for flooding.

The flood risk mapping project involves acquiring detailed elevation data – particularly around lakes and rivers – to increase understanding and prediction capabilities related to high-risk flood areas in communities.

In 2014-15, EMO conducted a light detection and ranging (LIDAR) imaging survey to capture elevation data in and around 13 community areas across Yukon (see Figure 3.3, page 18). Areas for targeted research were selected based on traditional knowledge and other data on historical flooding.

The survey work has now been completed and elevation data will be used in mapping and modeling programs to identify flood-prone areas. The resulting information will increase the Yukon government's ability to predict where and when floods are likely to occur, and to inform decisions about land use and where to locate infrastructure such as roads and buildings. The information will also be made available to community members to help them prepare for potential floods.

Kusawa Lake.

Taking action

In June 2014, the Yukon government released the *Yukon Water Strategy and Action Plan*, which establishes a foundation for water management in Yukon (see profile, page 19). Between October and December 2014, the government conducted an extensive public awareness campaign on the strategy.

The Yukon government made significant investments in community drinking water systems in 2014. For example, more than $18 million has been spent on water treatment plants for unincorporated communities over the past five years and $150,000 is currently being provided to Yukon College to ensure Yukon trains the professionals that are needed to keep water and wastewater treatment plants operating safely.

Significant improvements were made to the YukonWater website (**www.yukonwater.ca**) and Waterline (**www.yukonwaterboard.ca/waterline**) in 2014 to provide greater access to information on the quantity and quality of Yukon water resources.

Figure 3.3: Yukon Flood Risk Mapping – Areas of interest

PROFILE
Yukon Water Strategy and Action Plan

The *Yukon Water Strategy and Action Plan* (available in English and French) is designed to sustain the quality, quantity, and health of Yukon's water, for nature and for people. The strategy establishes a foundation for making complex water management decisions by setting out a vision, principles, goals, and six priority areas for water management. The Yukon government has committed to more than 50 actions that will be undertaken to advance these goals and priorities.

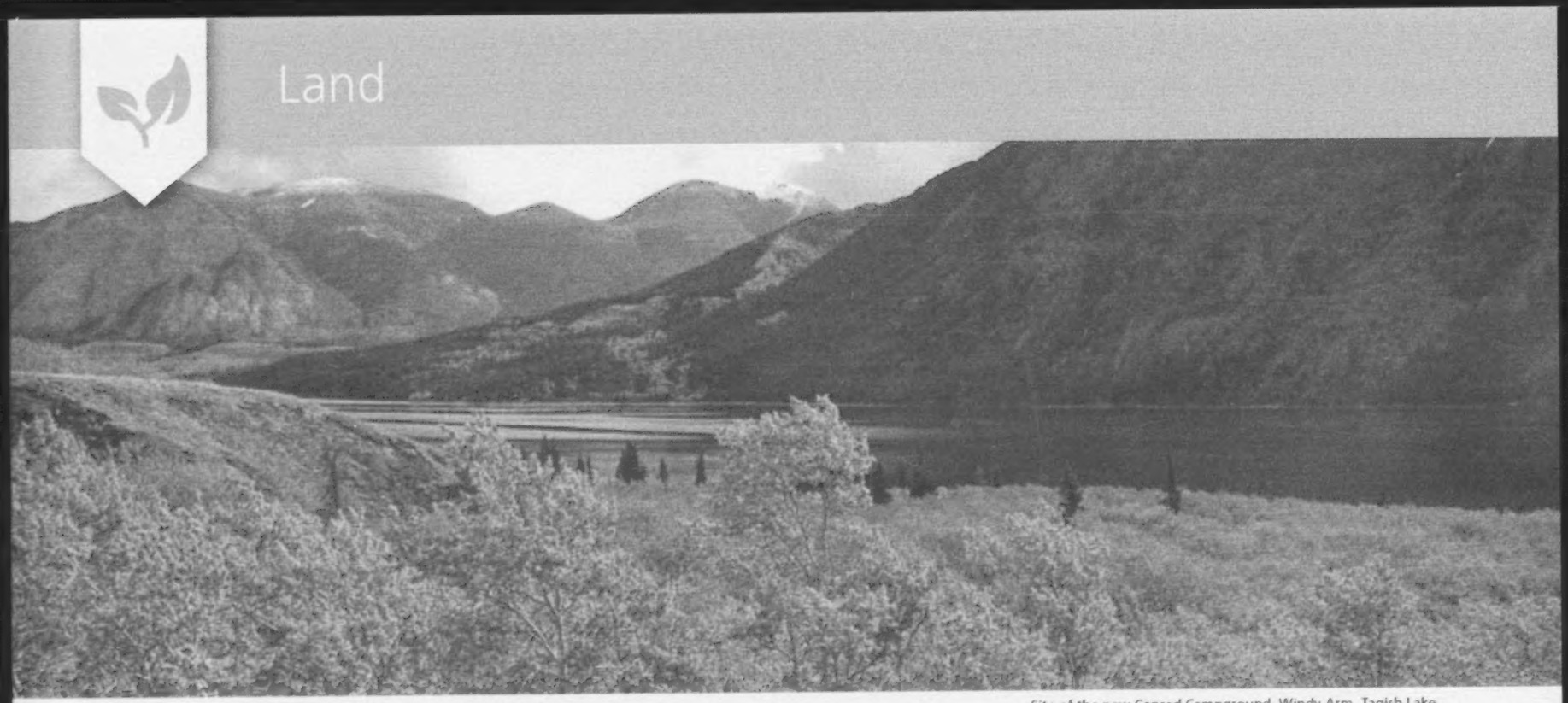
The strategy was developed through a collaborative and inclusive process. A range of organizations and individuals provided input for the strategy, including Yukon and transboundary First Nation governments, the federal government, other provincial and territorial governments, municipalities and communities, boards and councils, non-governmental organizations, water researchers and consultants, the business community, and members of the public. Implementation of the strategy will involve seven Yukon government departments which will work together, and where appropriate with other governments and organizations, to ensure the actions identified under the strategy are carried out.

As a demonstration of its commitment to the strategy, the Yukon government is investing $3.35 million over three years to implement the strategy. Current and recent actions to implement the strategy include hiring a hydrogeologist; enhancing two web-based communication tools on Yukon water (**www.yukonwater.ca** and **www.yukonwaterboard.ca/waterline**); expanding water quality and quantity monitoring networks; and continuing innovative research to better understand and adapt to climate change impacts on Yukon's hydrological regime.

Refer to the *Yukon Water Strategy and Action Plan* and **www.yukonwater.ca** to learn more about what the Yukon government is doing to sustain the quality, quantity, and health of Yukon water.

Blackstone River.

Land



Site of the new Conrad Campground, Windy Arm, Tagish Lake.

Land use planning

The Yukon government participates in a range of land and resource planning processes to support sustainable development and resource use. Planning involves collaboration between the Yukon government, First Nations, local governments and the public. For more information, as well as indicator data reported in 2014, please see the *2014 State of the Environment Report*, Land Use Planning section.

Indicator update

Management plans related to land use, resources and protected areas

4(a) Status of land use, resource management and protected area plans in Yukon (updated using 2015 data)

No new regional land use plans, forest resources management plans, local area plans, or protected area plans have been completed since spring 2014.

No regional land use planning processes are currently being undertaken in Yukon. Various projects are underway to lend clarity to how regional land use planning will be conducted in the future.

The Town of Faro's official community plan was updated in 2014. Official community plans are currently in place for all eight Yukon municipalities.

The Summit Lake–Bell River area was identified as a future territorial park in 2009 through the *North Yukon Regional Land Use Plan*. Agreement has been reached between the Yukon

and Vuntut Gwitchin governments for the park boundary. Management planning will begin in 2015.

The *Mount Lorne Development Area Regulation* was amended in 2014 to allow for a one-time-only subdivision of a parcel of land. This was the fifth time since 2004 that a regulation has been amended to allow for rural residential lot subdivision. In 2014, 27 lots were created through rural residential lot subdivision in areas with amendments (see Table 4.1). Two additional lots were created in Grizzly Valley, where the minimum lot size is two hectares.

Table 4.1: Rural residential lot subdivision, 2004-2014

Development Area	Initial lot parcel size	Regulation amended	Minimum lot size	New lots potential	Actual lots created
Hotsprings Road	6 ha	2004	3 ha	50	28
Ibex Valley	6 ha	2010	2 ha*	52	17
Golden Horn	6 ha	2011	2 ha	50	15
Mayo Road	6 ha	2013	2 ha	75	22
Mount Lorne	6 ha	2014	2 ha*	93	10

* The regulation allows for a one-time only subdivision of a parcel.
Source: Department of Energy, Mines and Resources

Taking action

A project is underway under the *North Yukon Regional Land Use Plan* to quantify current levels of surface and linear disturbance in the region. Results will provide a baseline to support project assessments under the *Yukon Environmental and Socio-economic Assessment Act*.

The Yukon government and Champagne and Aishihik First Nations will begin work this year on a timber supply analysis under the current three-year implementation agreement for the *Champagne and Aishihik Traditional Territory Forest Resources Management Plan*. A timber supply analysis is also planned for the Dawson region where the Yukon government is working with the Tr'ondëk Hwëch'in to implement the *Dawson Forest Resources Management Plan*.

PROFILE

Traditional Knowledge in Forest Resources Management Planning

Forest Resources Management Plans (FRMPs) are strategic, overarching, landscape-level plans that apply over a large area and a long time period. They guide the development of the forestry sector in Yukon regions and provide a foundation for developing Timber Harvest Plans and Site Plans. FRMPs set out social, economic, environmental, and cultural values related to forest management in the planning region; establish general principles, goals and objectives; delineate smaller planning areas in the region; and incorporate strategic direction from other land and resource plans.

FRMPs are developed by joint planning committees using a collaborative process. Committees include representatives from the Yukon government and from each First Nation whose Traditional Territory falls wholly within the planning region.

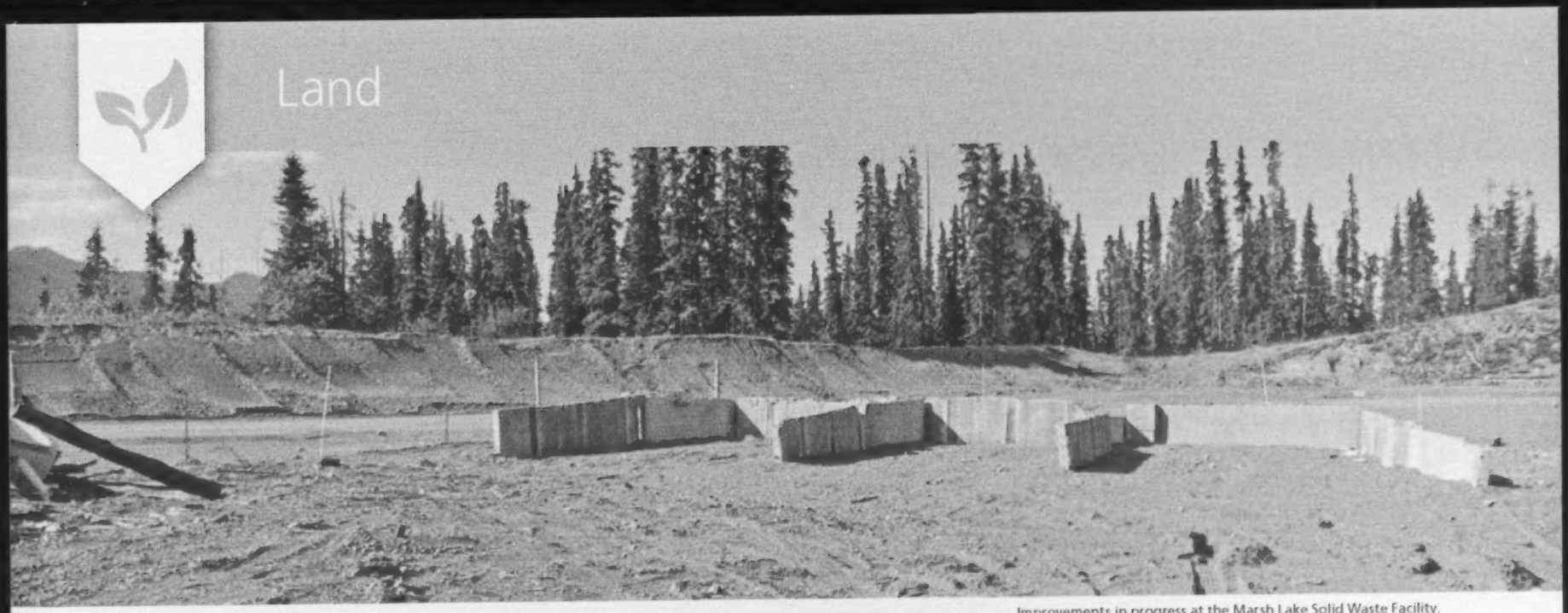
FRMPs recognize and incorporate Yukon First Nations traditional knowledge alongside other baseline data and information sources. The requirement that FRMPs take into account traditional knowledge originates with First Nation Final Agreements and is reflected in the *Forest Resources Act* and *Regulation* as well as in the terms of reference that guide the work of joint planning committees.

In developing FRMPs, joint planning committees gather and incorporate traditional knowledge through, for example, face-to-face meetings, workshops, written and oral submissions, and listening to First Nations Elders. Throughout the process, First Nation representatives on joint planning committees provide an important link to their respective First Nations Elders and citizens. Consultation with First Nations is required to ensure that traditional knowledge is effectively considered in the development of forest management options.

FRMPs are currently in place for the Dawson region, Teslin Tlingit Traditional Territory, and Champagne and Aishihik Traditional Territory, and a plan for the Whitehorse-Southern Lakes region is in progress.

For more information on forest management planning in Yukon, visit **www.emr.gov.yk.ca/forestry/forest_management_planning.html**.

Land



Improvements in progress at the Marsh Lake Solid Waste Facility.

Land use activities

Land uses such as resource-based and industrial activities can affect the environment and are subject to assessment and monitoring. Recreational activities such as camping provide an opportunity to experience and connect with the environment. For more information, as well as indicator data reported in 2014, please see the *2014 State of the Environment Report*, Land Use Activities section.

Indicator updates

Environmental and socio-economic assessments[5]

4(b) Project proposals assessed by the Yukon Environmental and Socio-economic Assessment Board (YESAB) (updated using 2013-14 data)

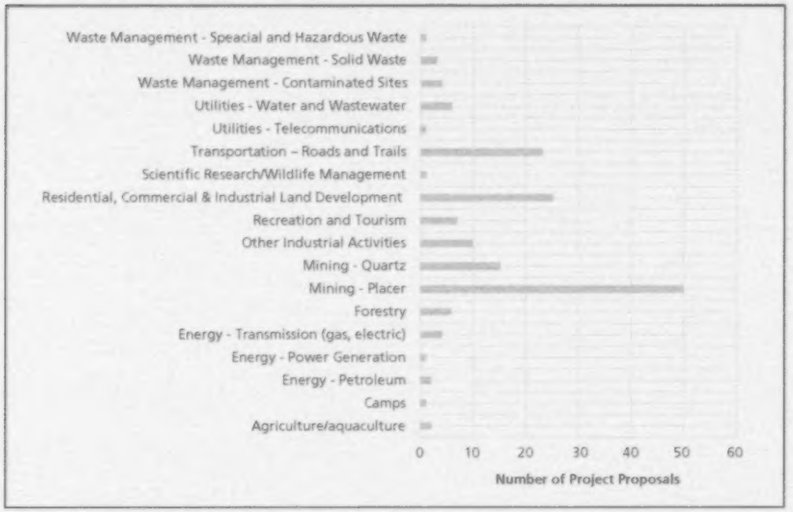
In its 2013-14 annual report, YESAB stated that 165 project proposals were submitted for assessment that fiscal year. Of these, 163 were submitted to a Designated Office and two for an Executive Committee screening (YESAB 2014).

4(c) Project proposals assessed by YESAB by sector in 2013-14 (updated using 2013-14 data)

In the 2013-14 fiscal year, 50 project proposals submitted to YESAB were from the placer mining sector – more than any other sector. Other sectors representing significant proportions of the total included residential, commercial, and industrial land development (25) and transportation (23) (YESAB 2014) (see Figure 4.1).

[5] The number and types of projects assessed by YESAB represent proxy measures of economic activity and potential environmental issues. However, actual environmental outcomes and the environmental performance of projects (i.e. success of mitigation measures to prevent environmental impacts) are difficult to quantify on an annual basis. This is due to factors such as multi-year permitting and licensing of activities, and the fact that many projects are not active in any given year.

Figure 4.1: Project proposals submitted to the Yukon Environmental and Socio-economic Assessment Board by sector in the 2013-14 fiscal year



Source: YESAB Annual Report 2013-14

4(d) Project proposals assessed by Designated Office in 2013-14 (updated using 2013-14 data)

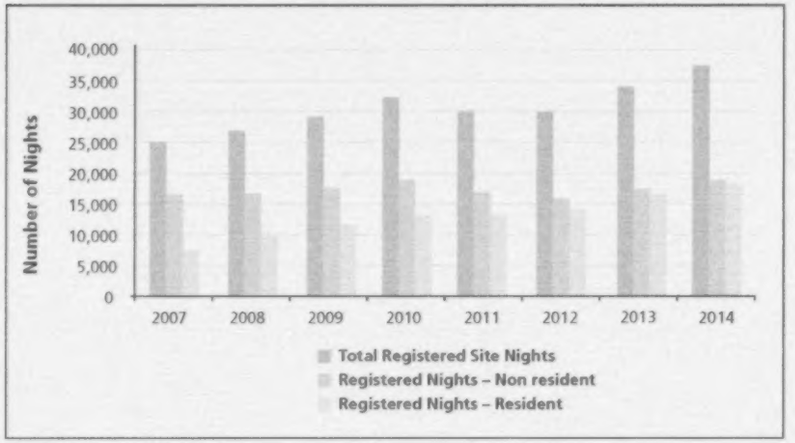
Of the 163 project proposals submitted to Designated Offices in 2013-14, 27 were cancelled or withdrawn, while 136 were classified as assessed or active at the end of the fiscal year (YESAB 2014).

Use of Yukon government campgrounds

4(e) Nights by camp user 2007-14 (updated using 2014 data)

Between 2012 and 2014, registered campsite nights (the total number of campsites occupied overnight in all Yukon government campgrounds during the camping season) increased by 22.5 per cent – from 30,305 nights to 37,120. Both non-resident and resident campsite nights increased during this period, by 18.3 per cent and 27.8 per cent respectively (see Figure 4.2). Increases in 2014 may be partly attributable to a longer camping season at 10 Yukon government campgrounds (see Taking Action, page 24).

Figure 4.2: Number of registered campsite-nights at Yukon government campgrounds, 2007-2014

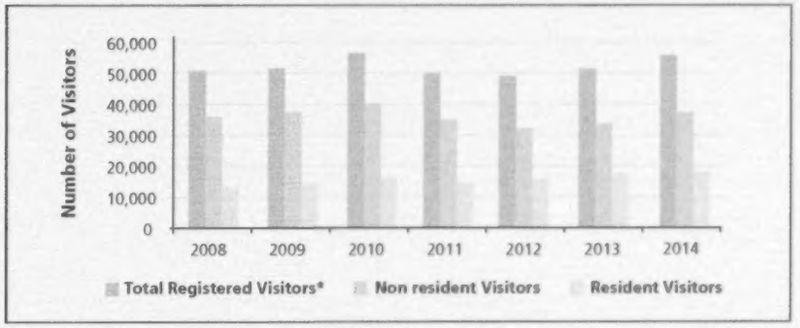


Source: Environment Yukon

4(f) Visitors using Yukon government campgrounds 2008-14 (updated using 2014 data)

Between 2012 and 2014, the number of registered visitors to Yukon government campgrounds increased by 13.6 per cent, from 48,743 visitors to 55,391. The number of campground visitors who are Yukon residents increased by 14 per cent, while the number of non-resident visitors increased by 15.5 per cent (see Figure 4.3). Increases in 2014 may be partly attributable to a longer camping season at 10 Yukon government campgrounds (see Taking Action, page 24).

Figure 4.3: Number of registered visitors to Yukon government campgrounds, 2008-2014



*Registered visitors are calculated as follows: Number of recorded visitors + (number of unrecorded registered parties x average number of visitors per party).

Source: Environment Yukon

Taking action

Beginning in 2014, the Department of Environment has extended the camping season at 10 high-traffic campgrounds (Congdon, Fox, Laberge, Marsh, Pine, Snafu, Squanga, Tarfu, Twin and Wolf). Full services are now provided at these campgrounds from early May until September 30.

The Department of Environment is currently developing a new campground near the Conrad historic site, located 15 kilometres south of Carcross on the shore of Windy Arm of Tagish Lake. The campground will open in May 2016 and include approximately 20 recreational vehicle campsites and 15 walk-in campsites.

PROFILE

Marwell Tar Pit remediation project

The Marwell Tar Pit is located in the Marwell industrial area of Whitehorse, north of Two Mile Hill. A petroleum refinery was built in the Marwell area during the Second World War to support war operations in Yukon and Alaska. The refinery operated from April 1944 until March 1945. When the refinery was dismantled after the war, sludge remaining in the storage tanks at the complex was deposited in an old tank berm near Quartz and Jasper roads, creating the Marwell Tar Pit (Government of Yukon 2015a).

In 1998, the Minister of Environment officially designated the Marwell Tar Pit a Yukon Contaminated Site under the *Environment Act*. Subsequently, in 2010, the governments of Yukon and Canada agreed to jointly fund remediation of the site.

The Yukon government is remediating the site in three phases:

1. preliminary activities to investigate and assess the site;
2. implementing the remediation; and
3. post-remedial activities to rehabilitate and monitor the site.

Phase 1 is effectively complete. It included identifying the affected area and the types of contamination present, and identifying and quantifying environmental and human health effects. The investigation showed that the contamination is mainly oil-related and is not impacting the surrounding area. The results also enabled the government to establish site-specific remediation targets that will support remediation and risk management plans.

To support transition to Phase 2, a Plan of Restoration for the Marwell Tar Pit is currently being developed and will be submitted to the Yukon Environmental and Socio-Economic Assessment Board later in 2015.

For more information, please see Environment Yukon's Marwell Tar Pit Remediation Project page (**www.env.gov.yk.ca/air-water-waste/marwell_tar_pit**), or contact the Site Assessment and Remediation Unit at envprot@gov.yk.ca.

Household hazardous waste shed, Old Crow Solid Waste Facility.

Solid waste management

Solid waste disposal in landfills can pose environmental and health risks as well as land use planning challenges. Generating less waste and increasing recycling and composting can help reduce reliance on landfills. For more information, as well as indicator data reported in 2014, please see the *2014 State of the Environment Report*, Solid Waste Management section.

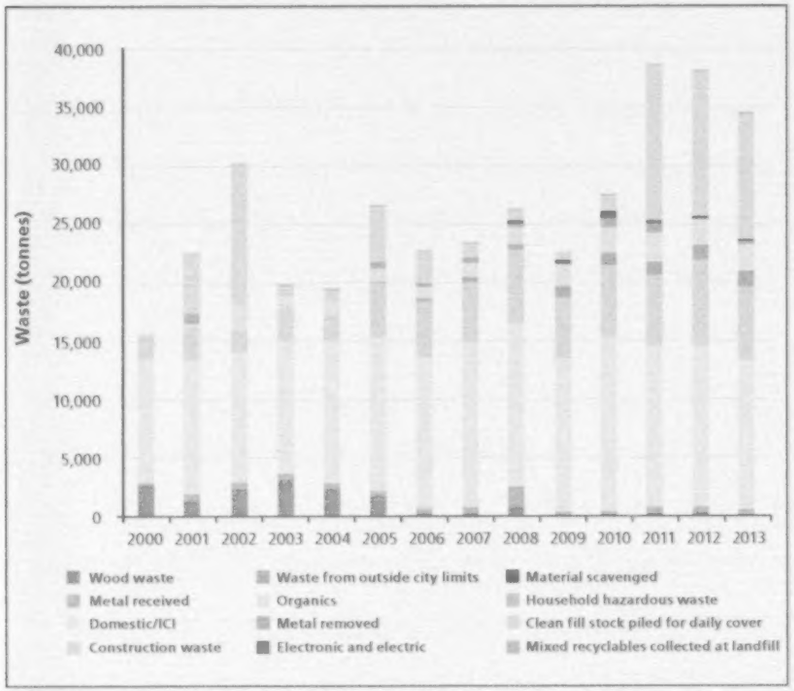
Indicator updates

Status of waste generation and diversion

4(g) Waste handled at the City of Whitehorse Waste Management Facility (updated using 2013 data)

The total amount of waste handled annually at the City of Whitehorse Waste Management Facility (including both landfilled and diverted materials) decreased by 9.5 per cent between 2012 and 2013, from 38,022 to 34,419 tonnes. However, it remains significantly higher than in 2000 (see Figure 4.4). The increase since 2000 can be attributed to population growth as well as increased housing development resulting in more construction and demolition waste.

Figure 4.4: Waste handled at the City of Whitehorse Waste Management Facility, 2000-2013



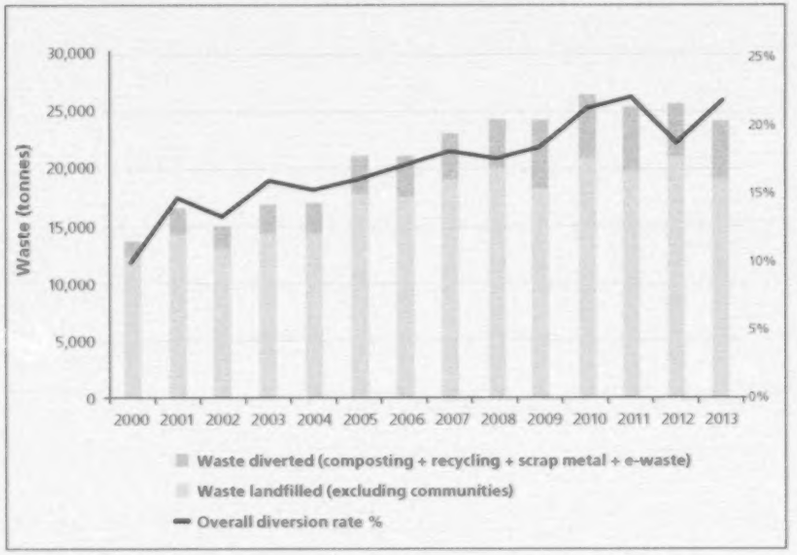
Note: Clean fill is granular soil or other uncontaminated material (such as crushed glass) that is used daily to cover the landfill. Since 2010, the amount of clean fill handled by the City of Whitehorse Waste Management Facility has increased as the City is accepting more excavated soil from construction projects. This does not reflect an increase in the amount of waste landfilled.

Source: City of Whitehorse

4(h) Whitehorse waste diverted through recycling and composting (updated using 2013 data)

Between 2012 and 2013, the overall percentage of Whitehorse waste diverted from the landfill through recycling and composting increased slightly from 19 to 22 per cent; however, this rate has remained relatively static in recent years (see Figure 4.5). Unless waste diversion increases, the Whitehorse landfill is expected to be full in 39 years.

Figure 4.5: Whitehorse waste diverted through recycling and composting, 2000-2013

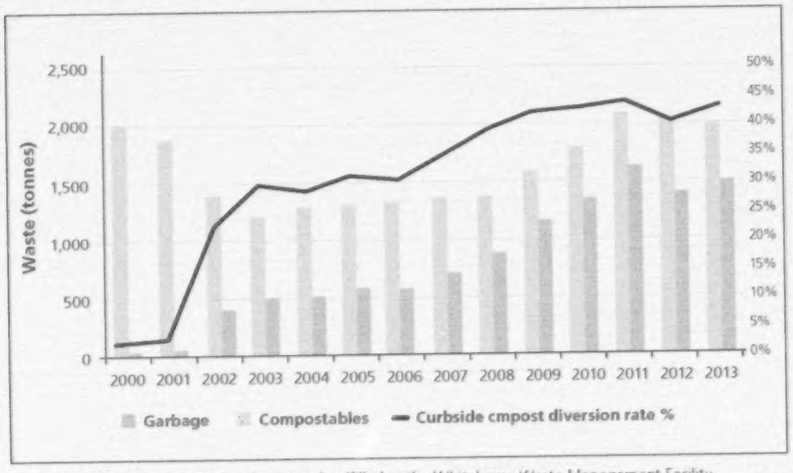


Source: City of Whitehorse

4(i) Curbside collection of waste and organics (updated using 2013 data)

Between 2000 and 2013, the diversion rate for organic waste from households with curbside collection increased from two per cent to 43 per cent. It also increased slightly between 2012 and 2013, from 41 to 43 per cent (see Figure 4.6).

Figure 4.6: Organic waste diversion rate for Whitehorse households with curbside collection, 2000-2013



Note: Organics are composted and waste is landfilled at the Whitehorse Waste Management Facility.
Source: City of Whitehorse

Taking action

The City of Whitehorse has a *Solid Waste Action Plan* which aims to divert 50 per cent of its waste by the end of 2015. To help meet this goal, in 2014 the City launched a pilot program for organics collection from multi-unit residential buildings and businesses, and is in the planning phase for a residential collection service for recyclables. Other initiatives include one-on-one assistance to businesses to identify waste diversion options and the creation of a waste-sorting app called "What Goes Where?" Both cardboard and clean wood have become controlled waste under the *Waste Management Bylaw*, which means that they are no longer welcome in the landfill and must be sorted.

The Yukon government is responsible for 18 public solid waste facilities in rural communities through the Department of Community Services, while the Department of Highways and Public Works manages three facilities that are not for public use. In 2014, the Yukon government continued to advance responsible solid waste management through actions including:

- An agreement with the Vuntut Gwitchin Government for local operations and maintenance of the solid waste facility in Old Crow. The agreement is the first of its kind and a positive step in strengthening local governance and enhancing the sustainability of essential service provision in Yukon communities.
- Working with the Marsh Lake Solid Waste Society to increase diversion options at the Marsh Lake solid waste facility by enabling residents to compost organics on site.
- Implementing a three-bin system (compost, recycling and waste) to enhance waste diversion options for staff at the Government of Yukon Administration Building in Whitehorse.
- Proposing amendments to the *Beverage Container Regulations* and the *Designated Materials Regulation* that would support an expanded and sustainable recycling system in Yukon. Proposed changes include applying a recycling surcharge to all beverage containers, increasing the deposit amount on beverage containers, and applying a recycling fee to all vehicle tires and selected electronic and electrical products. Of the 261 organizations and individuals who provided feedback, a majority expressed support for the proposed amendments. A summary of the public engagement results is available at **www.env.gov.yk.ca/environment-you/documents/recycling_system_comments.pdf.**

Fish and Wildlife

Bull Caribou

Population trends and planning initiatives

The health of fish and wildlife populations is important for healthy ecosystems and the well-being of people who rely on them. For more information, as well as indicator data reported in 2014, please see the *2014 State of the Environment Report*, Population Trends and Planning Initiatives section.

Indicator updates

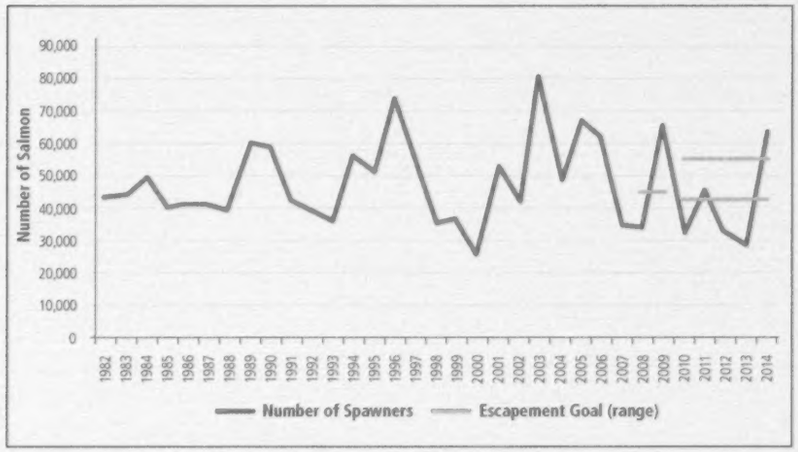
Trends for select species and the development of plans to manage fish and wildlife populations

5(a) Returns of spawning Chinook salmon (updated using 2014 data)

The spawning conservation target (escapement range) of 42,500-55,000 Canadian-origin Chinook salmon returning to Yukon was met in 2014, with a preliminary spawning escapement of 63,000 fish (see Figure 5.1). This is the third time in the last eight years that the escapement goal has been met, and the third highest escapement since sonar counting came into use in 2005.

Harvest restrictions in commercial and traditional fisheries in Alaska and Yukon, including voluntary harvest restrictions by First Nations, made achievement of the escapement goal possible.

Figure 5.1: Number of Chinook salmon spawning in the Canadian portion of the Yukon River, excluding the Porcupine River drainage, 1982-2014



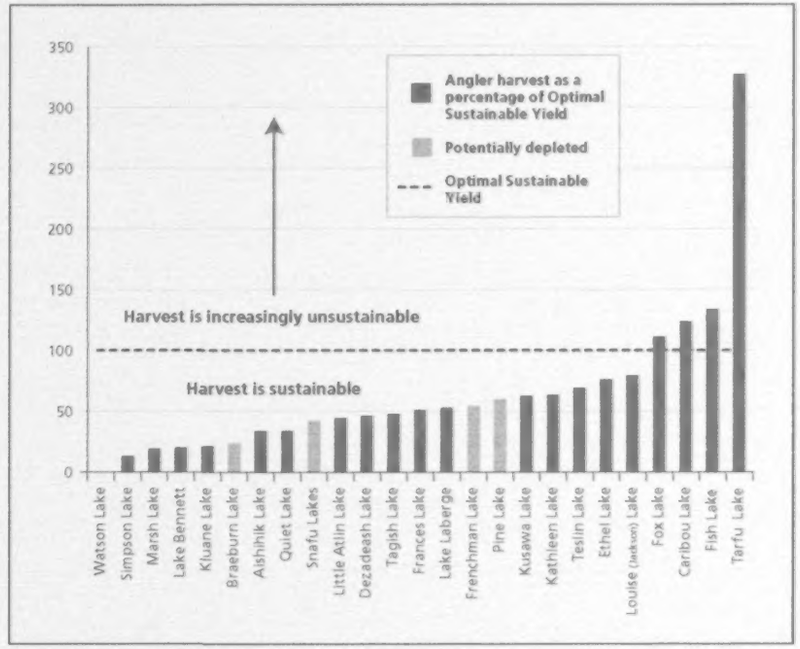
Source: Fisheries and Oceans Canada

5(b) Sustainability of lake trout fisheries (updated using 2013 data)

As reported in 2014, lake trout harvest is considered sustainable for the majority of lakes surveyed. However, angler harvest data up to 2013 show that lake trout harvest in Fox, Caribou, Fish and Tarfu lakes exceed sustainable limits (see Figure 5.2). The Fox Lake harvest was previously reported as sustainable in the *2014 State of the Environment Report* based on angler harvest data up to 2011.

Harvest in Braeburn, Snafu, Frenchman, and Pine lakes is low but may be unsustainable because these lake trout populations appear to be depleted (see Taking Action, page 32).

Figure 5.2: Sustainability of angler harvest of select Yukon lake trout populations based on angler harvest data up to 2013



Source: Environment Yukon

Fish and Wildlife

5(c) Status of caribou herd populations (updated using 2014 data)

Of the 26 Woodland Caribou herds in Yukon, one is increasing in size, 12 are relatively stable, and three are declining. Population trends are unknown for 10 herds.

Both of the Barren-ground Caribou herds that occur in Yukon, Forty Mile and Porcupine, are increasing in size (see Table 5.1). In summer 2013, the size of the Porcupine caribou herd was estimated by Alaska Department of Fish and Game personnel. This estimate placed the herd's size at 197,000 animals, representing an increase from the previous estimate of 169,000 animals in 2010.

In fall 2013, a formal population survey of the Chisana caribou herd was conducted by the Yukon Department of Environment, Alaska Department of Fish and Game, and the U.S. National Park Service. The herd size is estimated to be 700 animals. The herd has been stable since 2003.

In summer 2013, the size of the Porcupine caribou herd was estimated by Alaska Department of Fish and Game personnel. This estimate placed the herd's size at 197,000 animals, representing an increase from the previous estimate of 169,000 animals in 2010.

Population trend is determined using successive population estimates, if available; composition data from aerial surveys (for example, calf numbers); and information regarding sources of mortality such as harvest or road kill.

5(d) Distribution of Yukon caribou herds (updated using 2014 data)

The Ibex caribou herd is currently expanding its range to the north and west. Information collected by Environment Yukon and by members of the public indicates that this herd is now being seen in areas where it has not been observed for many decades, particularly west of Kusawa Lake.

In the winter of 2012-13, the Forty Mile caribou herd dramatically increased its Yukon range, substantially expanding its recent range both east and north (see Figure 5.3). This movement of Forty Mile caribou into Yukon was unprecedented and it remains to be seen whether it will be a regular or one-time occurrence.

5(e) Status of community-based fish and wildlife work plans and species plans (updated using current as of February 2015)

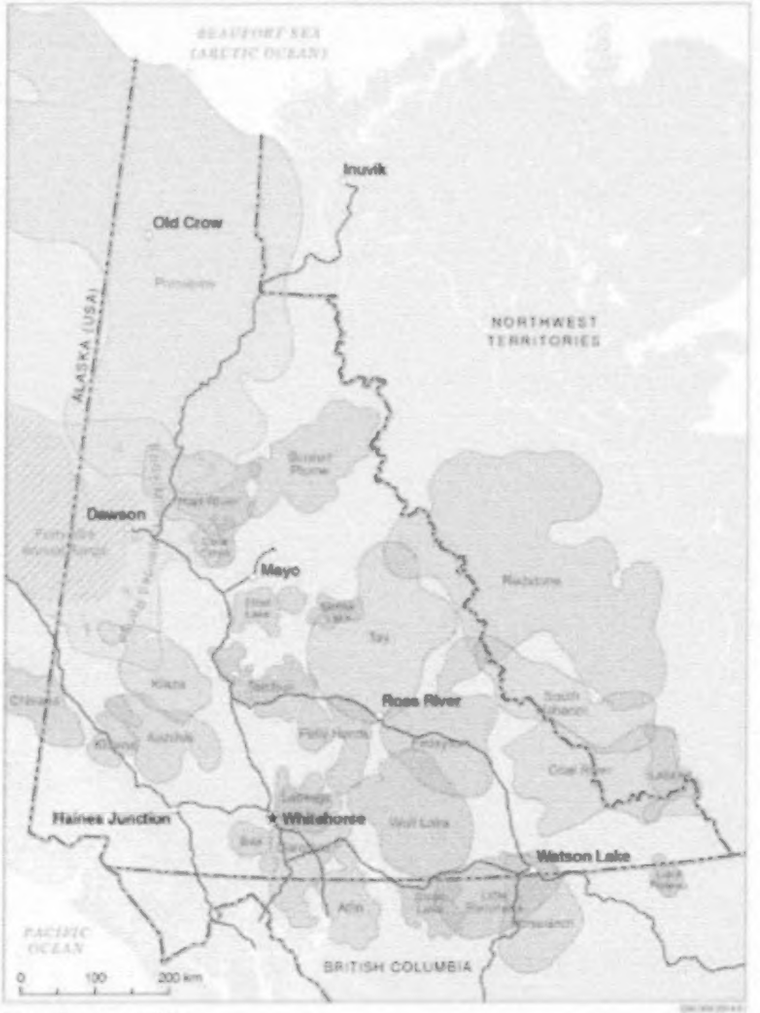
Three community-based fish and wildlife work plans and nine species management plans are currently in place. Most recently, the *Community-based Fish and Wildlife Work Plan for the Na-Cho Nyäk Dun Traditional Territory* was completed in October 2014 (see profile, page 34).

Table 5.1: Status of caribou herd populations in Yukon, 2014

Barren Ground Caribou				
Herd	Size	Method	Assessment Year	Current Trend
Fortymile	51,000	Estimate (4)	2010	Increasing
Porcupine	197,000	Estimate (4)	2013	Increasing
Woodland Caribou				
Herd	Size	Method	Assessment Year	Current Trend
Aishihik	2,050	Estimate (5)	2009	Stable
Atlin	800	Estimate (2)	2007	Stable
Bonnet Plume	5,000	Guess	1982	Unknown
Carcross	800	Estimate (2)	2008	Stable
Chisana	700	Estimate (5)	2013	Stable
Clear Creek	900	Estimate (2)	2001	Unknown
Coal River	450-700	Estimate (1)	2008	Stable
Ethel Lake	300	Estimate (2)	1993	Stable
Finlayson	3,100	Estimate (2)	2007	Declining
Hart River	2,200	Estimate (2)	2006	Unknown
Horseranch and Little Rancheria (two herds)	1750	Estimate (2)	1999	Declining
Ibex	850	Estimate (2)	2008	Increasing
Klaza	1180	Estimate (5)	2012	Stable
Kluane	180	Estimate (5)	2009	Stable
Laberge	100-300	Estimate (2)	2003	Unknown
Labiche	450-700	Estimate (1)	1993	Unknown
Liard Plateau	150	Estimate (1)	2011	Stable
Moose Lake	300	Estimate (2)	1991	Unknown
Pelly Herds	1,000	Estimate (3)	2002	Unknown
Redstone	10,000	Estimate (1)	2012	Stable
South Nahanni	2,100	Estimate (5)	2009	Stable
Swan Lake	600-800	Estimate (2)	2007	Unknown
Tatchun	500	Estimate (1)	2000	Stable
Tay River	3,750	Estimate (2)	1991	Unknown
Wolf Lake	1,500	Estimate (2)	1998	Unknown

Techniques:
(1) Total Minimum Count (2) Stratified Random Quadrat (3) Extrapolation (4) Direct Photocount (5) Mark – Resight
Source: Environment Yukon

Figure 5.3: Distribution of caribou herds in Yukon, 2014



Source: Environment Yukon

Fish and Wildlife

Taking action

In 2015, the United States and Canada Joint Technical Committee, which provides science and management expertise to support the Yukon River Panel, will work towards developing a new biologically-based escapement goal for Canadian Chinook salmon.

In 2014, Environment Yukon surveyed key fisheries in six lakes and two rivers through angler harvest surveys, and conducted fish population assessments in six lakes. The department has also developed new population assessment methods for Arctic grayling and burbot.

Based on recommendations by the Yukon Fish and Wildlife Management Board, regulation changes for Pine, Louise (Jackson), Snafu and Tarfu lakes were accepted in 2014 and went into effect April 1, 2015. The changes will reduce catch and possession limits for lake trout, to allow depleted populations in these lakes to rebuild.

Environment Yukon's Fish and Wildlife Branch publishes an annual report summarizing its actions to monitor and protect wildlife. The most recent report is available online at **www.env.gov.yk.ca/publications-maps/documents/FWB_Highlights_2013.pdf.**

Caribou herd.

PROFILE
Local knowledge interviews in Mayo

Each year, Environment Yukon conducts local knowledge interviews in the Mayo area that represent another approach to monitoring environmental change. The interviews complement technical monitoring activities by capturing local people's thoughts and observations on environmental change and how their subsistence activities are affected. Interviews target those who spend the most time on the land, engaged in activities such as fishing, hunting, trapping, and berry picking. Interviews are carried out by teams of secondary school students from J.V. Clark School in Mayo.

In February and March 2014, 26 people were interviewed about their observations during the preceding year; interview data were then summarized in a "Community Diary" report. The report for 2013-14 covers topics such as weather; water and ice conditions; changes on the land; human activities and their effects; plants, mushrooms, and berries; fish; moose; rodents and hares; carnivores; and other animals.

Interviewees reported observing melting permafrost; warmer than usual weather in the summer, fall and winter; good berry crops; low numbers of salmon; and fewer moose than usual. They also reported that weather conditions affected their activities on the land. For example, trappers had difficulty accessing their traplines in early winter due to late freeze-up of rivers and lakes, and overflow made snowmobile travel difficult. Fewer people reported fishing locally for Chinook salmon than in the past; and some interviewees reported being unable to meet their berry, fish and moose needs for the year.

Fish and Wildlife

Measuring lake trout.

Contaminants

Contaminants such as heavy metals can persist in the environment and can have serious health implications for wildlife and for people. For more information, as well as indicator data reported in 2014, please see the *2014 State of the Environment Report*, Contaminants section.

Indicator updates

Contaminant levels in key wildlife populations

5(f) Mercury levels in caribou (no update)

5(g) Cadmium levels in caribou and moose (no longer tracked)

5(h) Airborne mercury levels (no update)

5(i) Mercury levels in fish in Laberge and Kusawa Lakes (updated using 2014 data)

The federal Northern Contaminants Program (NCP) annually measures mercury levels in the Porcupine caribou herd and in Laberge and Kusawa lake trout, and continuously monitors atmospheric mercury and samples for organic contaminants at Little Fox Lake. Measurement of mercury levels in lake trout in 2014 showed no significant changes from previous years.

Taking action

The NCP recently completed a Call for Proposals for 2015-16 fiscal year for the continued funding of research and monitoring on contaminants in the North.

Fish and Wildlife

Annual alpine walk, Keno Hill, Mayo District.

PROFILE
Community-based Fish and Wildlife Work Plan for the Na-Cho Nyäk Dun Traditional Territory

The *2014-19 Community-Based Fish and Wildlife Work Plan for the Na-Cho Nyäk Dun Traditional Territory* was developed jointly by the Yukon government, the First Nation of Na-Cho Nyäk Dun and the Mayo District Renewable Resources Council and completed in October 2014. It identifies priority issues for the area and proposes cooperative approaches to addressing them.

The current plan is the community's fifth. It builds on previous work plans but also includes new issues and ideas brought forward by the three parties and community members. The plan's objectives and proposed activities relate to four priority issues: habitat; moose; freshwater fish; and monitoring and stewardship. While caribou was not identified as a priority through the planning process, the work plan documents the range of issues related to this species as well as related work anticipated over the coming years.

The work plan incorporates the results of significant community consultation and engagement – notably, a survey of community members who spend time on the land, and a public meeting in which community members filled out comment cards identifying the issues most important to them.

Over the next five years, the parties will address as many of the plan's priority issues as possible within existing budgets. In 2016-17, the parties will review the plan to check in on what work has been completed and, potentially, identify new developments that need to be addressed. The parties will conduct a final review of the plan in 2018-19, and at that time work on a new plan will begin.

PROFILE
Yukon Salmon Sub-Committee

The Yukon Salmon Sub-Committee (YSSC) was established under Chapter 16 of the Umbrella Final Agreement to act as "the main instrument of salmon management in the Yukon". The YSSC makes up the majority of the Canadian portion of the Yukon River Panel. The Yukon River Panel develops and implements agreed-upon research and management programs, makes recommendations to management agencies, sets and adjusts spawning escapement objectives, and oversees the use and administration of the Restoration and Enhancement Fund.

Given the long-term decline of Chinook salmon, the YSSC has been working with Yukon River communities, First Nation governments and Renewable Resources Councils to continue building on conservation efforts. Over the last decade, Yukon First Nations have been voluntarily restricting their harvest and doing their part to conserve Chinook. Education, outreach and awareness are priorities for the YSSC on both sides of the border. The recent "Salmon Know No Borders" campaign featured profiles of Alaska and Yukon fishers working together to address declining salmon returns.

With no commercial fishing, little to no subsistence fishing, and no recreational fishing, it is hoped that Yukon River Chinook salmon will be given the chance to rebuild. To assist with this, the YSSC is actively supporting community based stock restoration initiatives and working with Yukon First Nations to support cultural fisheries or harvest camps to ensure that youth, elders and the community continue to stay engaged in these traditional activities in these times of conservation.

In addition to a conservative management approach, putting more fish on the spawning grounds, focusing on their productivity, and doing what we can to bring these fish back to their natural levels will be the priority. Topics currently being discussed include widespread habitat restoration initiatives and small-scale hatcheries. For more information see **www.yssc.ca**.

Fish and Wildlife

Columbia Spotted Frog.

Short-eared Owl.

Species at risk

Species at risk are naturally occurring plant and animal species that are in danger of extinction or extirpation (disappearing from Yukon). The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) assesses species to determine whether they are at risk nationally. For more information, as well as indicator data reported in 2014, please see the *2014 State of the Environment Report*, Species at Risk section.

Indicator updates

Species at risk found in Yukon

5(j) Status of amphibians, birds, fish, mammals, plants, and insects (updated using 2015 data)

To date, COSEWIC has identified 721 species at risk in Canada: 15 that are assessed as Extinct, 23 Extirpated, 312 Endangered, 167 Threatened, and 204 of Special Concern. 33 of these species occur in Yukon (four that are Endangered, seven Threatened, and 22 of Special Concern) (Government of Yukon 2015d).[6]

In 2014, COSEWIC conducted new formal status assessments for four species found in Yukon: two bumblebees (gypsy cuckoo, Endangered, and western, Special Concern); one plant (Yukon podistera, Special Concern); and one bird (Red-necked Phalarope, Special Concern).

[6] One additional species, the Red Knot (Threatened), is an accidental visitor in Yukon, meaning that it is not normally expected to be seen here.

Fish and Wildlife

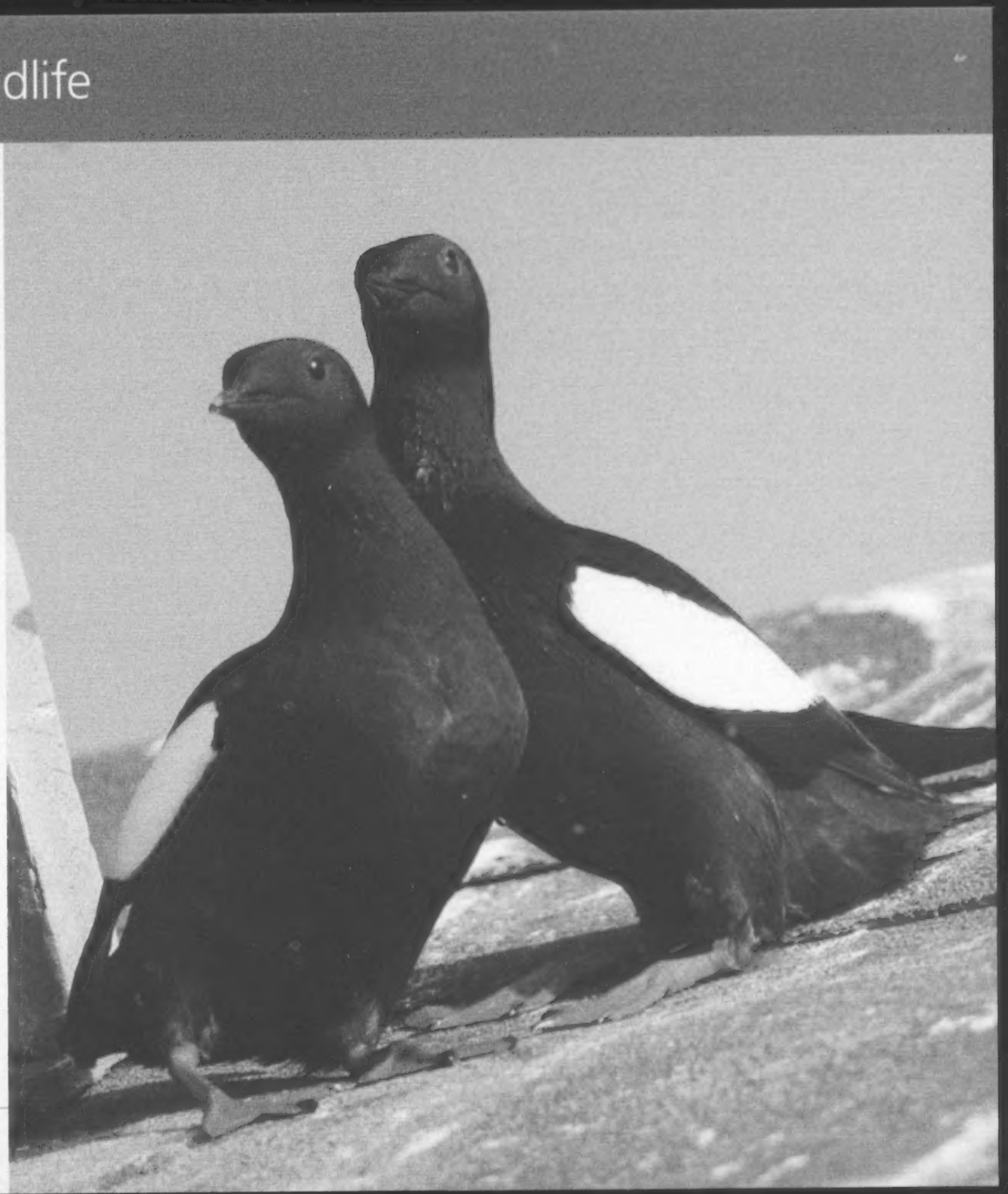
Additionally, three Yukon species were reassessed in 2014: the Wolverine (Special Concern); Woodland Caribou, Boreal population (Threatened); and Woodland Caribou, Northern Mountain population (Special Concern). None of these reassessments resulted in a change to the species' status.

For more information on Yukon species at risk, please see **www.env.gov.yk.ca/animals-habitat/speciesrisk**.

Taking action

The Yukon government is currently participating in the development of national recovery strategies and management plans[1] for five species found in Yukon: the Polar Bear, Wood Bison, Peregrine Falcon, Short-eared Owl, and Western Toad. Management plans were completed in 2014 for three species that occur in Yukon – the Canada Warbler, Common Nighthawk, and Olive-sided Flycatcher.

[1] Under the federal Species at Risk Act (SARA), recovery strategies are required for Extirpated, Endangered, and Threatened species (SARA Schedule 1) while management plans are required for species of Special Concern (SARA Schedule 3).



Monitoring the population of nesting Black Guillemots at Herschel Island-Qikiqtaruk is a key indicator of ecological integrity (Photo C. Eckert). **See profile on page 37.**

PROFILE
Black Guillemot monitoring at Herschel Island-Qikiqtaruk Territorial Park

The Black Guillemot is a striking black and white seabird with a circumpolar breeding distribution. Yukon's only Black Guillemot nesting colony, and one of the largest in the Western Arctic, is located at Herschel Island-Qikiqtaruk Territorial Park, off the north coast of Yukon in the Beaufort Sea. The Black Guillemots lay their eggs in nest boxes and crevices at the historic Anglican mission house at Pauline Cove.

The Department of Environment has been monitoring the colony since the mid-1980s as part of the Herschel Island-Qikiqtaruk Territorial Park Inventory, Monitoring, and Research Program. An annual survey records the total number of nesting Guillemots on Herschel Island; nesting success and productivity; and year-to-year return and survival of adults and chicks. Black Guillemot monitoring is an important component of overall ecological monitoring for Herschel Island-Qikiqtaruk, as the size and productivity of the nesting colony are key indicators of the park's ecological integrity.

Monitoring in 2014 recorded the poorest nesting season since 2004 (see Table 5.2). The adult population was a record low of just 29 individuals at the colony, while a nest check in late August showed that 10 out of 17 nests had failed. The remaining nests contained a total of seven live chicks. By contrast, in 2013 there were 41 adults at the colony, and 14 successful nests with seven containing two live chicks each. Lack of prey species – particularly Arctic cod – may have contributed to poor nesting success in 2014, and may also have caused adult guillemots to leave the area to find better feeding grounds elsewhere.

In the past, the Black Guillemot nesting colony at Herschel Island-Qikiqtaruk has rebounded after poor years. Monitoring in 2015 will be critical for determining the health of the population.

Table 5.2: Black Guillemot monitoring at Herschel Island-Qikiqtaruk Territorial Park – Yearly totals for adults, nests, eggs, and chicks, 1984-2014

Year	Adults	Nests			Eggs		Chicks		
		Early (mid-July)	Late (mid- to late August)	Percentage of nests surviving June-August	Total	Percentage of eggs hatched	Early August	Late August	Percentage of chicks surviving from early to late August
1984	107	14	-	-	-	-	-	-	-
1985	83	23	-	-	-	-	-	-	-
1986	90	31	-	-	-	-	-	-	-
1988	-	26	-	-	45	-	-	-	-
1992	-	36	-	-	34	-	-	-	-
1993	-	32	-	-	59	-	-	-	-
1994	-	37	-	-	46	-	-	-	-
1996	-	23	-	-	41	-	-	-	-
1997	-	19	-	-	30	-	-	-	-
1998	-	29	21	72	47	77	36	34	94
1999	-	33	18	55	50	68	34	29	85
2001	-	29	-	-	41	-	-	-	-
2002	-	16	-	-	26	-	-	-	-
2003	-	12	2	17	15	20	3	2	67
2004	-	10	0	0	14	7	1	0	0
2005	60	18	11	61	29	76	22	22	100
2006	40	12	9	75	19	68	13	13	100
2007	40	15	12	80	24	71	17	16	94
2008	40	25	17	68	41	78	32	25	78
2009	59	18	17	94	33	97	32	31	97
2010	59	22	22	100	34	100	34	29	85
2011	42	16	14	88	29	79	23	22	96
2012	52	23	20	87	41	85	35	32	91
2013	41	17	14	82	28	79	22	21	95
2014	29	17	7	41	30	23	11	7	64

Source: Eckert, C.D., Department of Environment

Fish and Wildlife

Creeping Thistle.

Invasive species

An invasive species is defined as an organism (plant, fungus, or bacterium) that is introduced into an ecosystem and has negative effects on the economy, environment, and/or health. The term "invasive" is reserved for the most aggressive species, which reproduce rapidly and cause major changes to the areas where they become established (Yukon Invasive Species Council 2015). For more information, as well as indicator data reported in 2014, please see the *2014 State of the Environment Report*, Invasive Species section.

Indicator updates

Presence of alien and invasive species

5(k) Invasive species along Yukon highway corridors (no update)

5(l) Top 10 list of invasive and alien species (no update)

As of February 2015, an estimated 157 alien plant taxa have been identified in Yukon. Of these, 93 are currently known to be present and an additional 34 may be present. Of the alien plant taxa that known to be present in Yukon or that may be present, 20 are considered invasive.

As in 2014, 13 alien animal species have been identified in Yukon, though none are considered invasive.

Taking action

In 2014, Yukon government launched an aquatic invasive species awareness campaign. The Department of Environment began posting signs to generate awareness about aquatic invasive species and to help safeguard Yukon's biodiversity (see Figure 5.4) (Government of Yukon 2015c). These signs are placed at major boating and angling access points in Yukon. The signs encourage residents and visitors to protect Yukon waters by following these easy steps when moving between bodies of water: check, drain, and clean your boats, fishing gear and equipment.

Also in 2014, the Department of Environment carried out a survey to collect information about the public's level of awareness of aquatic invasive species and their behaviours that prevent the spread of aquatic invasive species.

Figure 5.4: Environment Yukon boat launch sign – Stop Aquatic Invasive Species

Source: Environment Yukon

PROFILE
Arctic Borderlands Ecological Knowledge Society – Community Ecosystem Monitoring Interviews

The Arctic Borderlands Ecological Knowledge Society (ABEKS) is a not-for-profit organization that monitors changes in the Porcupine caribou herd's range (see Figure 5.3, page 31). Its goals include encouraging the use of science-based studies as well as studies based on local and traditional knowledge in ecological monitoring and ecosystem management; improving communications among governments, communities, and scientists; and fostering capacity-building in northern communities. Yukon government staff offer direction to ABEKS and review and use some of the available data and data interpretations.

As part of ABEKS' work, community monitors conduct annual Community Ecosystem Monitoring Interviews with local experts who live and hunt, fish, gather berries, and observe wildlife in northern communities, including Old Crow, Yukon. Through the interviews, respondents report their observations about berries, fish, birds, caribou, unusual animal sightings, weather conditions, and other aspects of the environment and communities. The community monitors also gather data on the amount of time people spend on the land.

The most recent Community Ecosystem Monitoring Interviews in Old Crow were carried out between January 16 and 24, 2014; results are summarized in Community Reports 2013-14. In 2014, Old Crow respondents reported observing significant environmental changes, with effects on local ecosystems and traditional lifestyles. For example, they observed trails that were being eroded due to melting permafrost; plants growing more rapidly than in the past with negative effects on caribou; changes in bird populations and introduction of new species; and a decrease in the moose population due to increased predation by wolves.

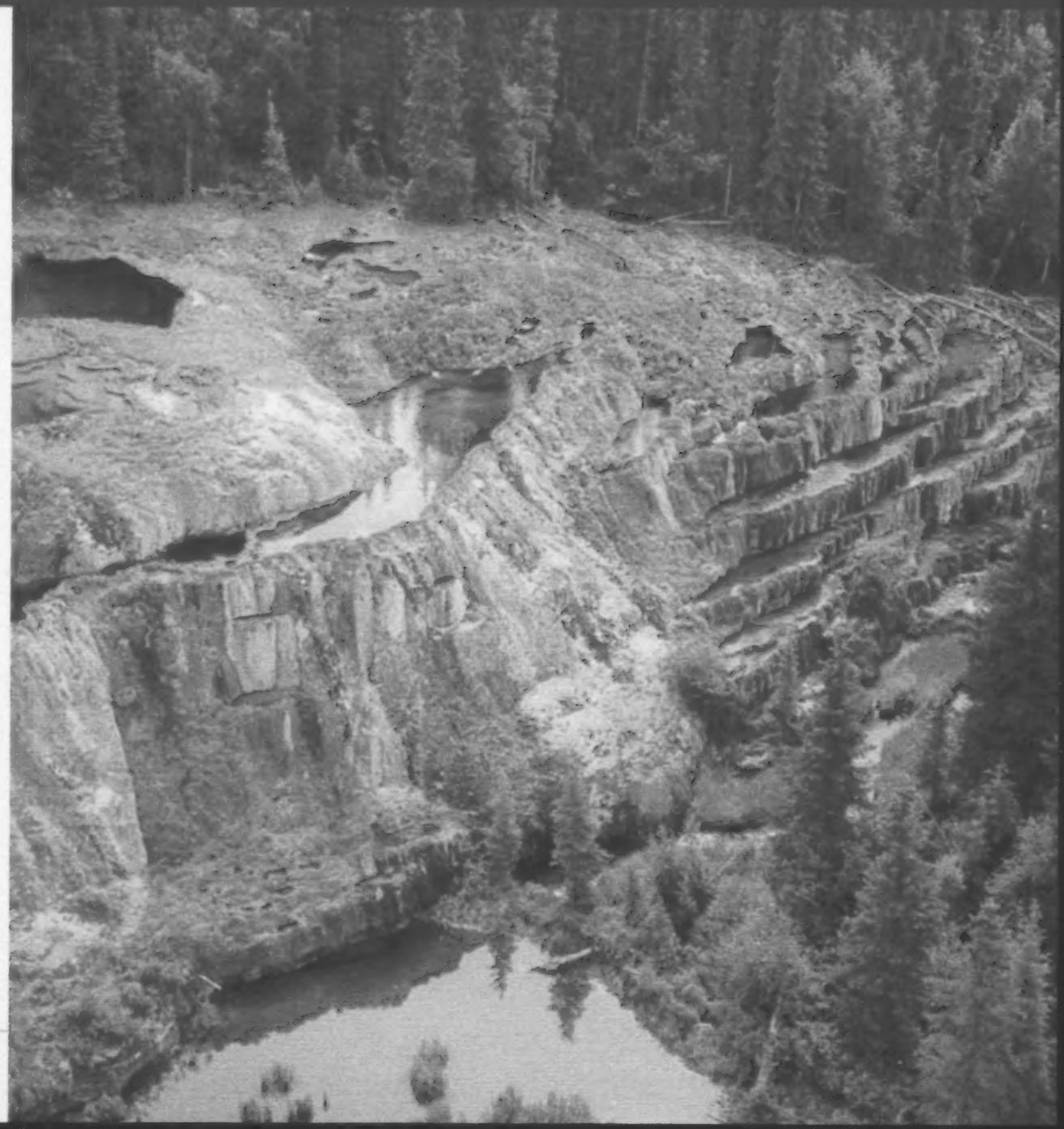
ABEKS' Community Reports are reviewed by the Porcupine Caribou Management Board in their annual harvest reviews, and provide another piece of valuable information for the management of this herd.

Conclusion

The 2015 interim report updates information and indicators presented in the *2014 State of the Environment Report*, using the most current available data. It is intended to provide information on present environmental conditions and what is being done to maintain and improve the quality of the environment.

Updated indicator data suggest that the condition of Yukon's environment remains largely favourable compared with other jurisdictions and Canada as a whole. For example, water quality remains stable or has improved and a relatively small number of Yukon species are considered at risk compared with other provinces and territories. However, the data also identify areas of concern such as rising temperatures; earlier breakup of river ice; and an ongoing need to increase the rate of solid waste diversion.

Future state of the environment reporting will continue to track environmental issues of concern to Yukoners in order to provide early warning of environmental problems, inform policy development and support public discussion and participation.



Coal River Springs Territorial Park.

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Indicator updates at a glance ☐ Updated ☐ No update

Indicator	2014 Full Report (Year latest data are available)	2015 Interim Report (Year latest data are available)
1. Climate Change		
1(a)Trends in Yukon greenhouse gas levels	2011	2012
1(b) Yukon vs. Canada greenhouse gas emissions by sector	2011	2012
1(c) Long-term trend in temperature variation	2011	2012
2. Air		
2(a) Mean ambient annual $PM_{2.5}$ levels in the City of Whitehorse	2012	2013
2(b) Number of days per year that $PM_{2.5}$ levels in Whitehorse exceed the Yukon Ambient Air Quality Standard	2012	2013
2(c) Average monthly $PM_{2.5}$ levels for 2013 compared with 2003-2012	2012	2013
2(d) City of Whitehorse average monthly $PM_{2.5}$ levels compared with similar communities	2012	2013
3. Water		
3(a) Samples collected at Yukon monitoring stations	2011	2012
3(b) Water Quality Index rolling average ratings	2011	2012
3(c) Trends in Yukon River ice break-up	2013	2014
3(d) Magnitude and timing of peak flow in comparison to historic trends	2010	No update
3(e) Changes in snow depth, snow water equivalent, snowmelt, and snow cover	2013	2014
4. Land		
4(a) Status of land use, resource management and protected area plans in Yukon	2013	2014
4(b) Project proposals assessed by YESAB	2012/13	2013-14
4(c) Project proposals assessed by YESAB by sector	2012/13	2013-14
4(d) Project proposals assessed by Designated Office	2012/13	2013-14
4(e) Nights by camp user	2012	2014
4(f) Visitors using Yukon government campgrounds	2012	2014
4(g) Waste handled at the City of Whitehorse Waste Management Facility	2012	2013
4(h) Whitehorse waste diverted through recycling and composting	2012	2013
4(i) Curbside collection of garbage and organics	2012	2013
5. Fish and Wildlife		
5(a) Returns of spawning Chinook salmon	2013	2014
5(b) Sustainability of lake trout fisheries	2011	2013
5(c) Status of caribou herd populations	2013	2014
5(d) Distribution of Yukon caribou herds	2013	2014
5(e) Status of community-based wildlife plans and species plans	2013	2014
5(f) Mercury levels in caribou	2013	No update
5(g) Cadmium levels in caribou and moose	2013	No update
5(h) Airborne mercury levels	2013	No update
5(i) Mercury levels in fish in Laberge and Kusawa Lakes	2013	2014
5(j) Status of amphibians, birds, fish, mammals, plants, and insects	2013	2014
5(k) Invasive species along Yukon highway corridors	2007	No update
5(l) Top 10 list of invasive and alien species	2013	No update

Yukon
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